this middle West, and finally extended even further west. They traded in the Lake Michigan region and came down all over this country.

3129 The fact that a man made a statement as a result of a conversation with his contemporaries who knew the facts should be taken into consideration with all these other things which I might name.

As to whether the statement of a man of standing who has talked with a great many men with reference to a fact makes the statement on the basis of his talk with those men is given as much weight or even greater weight by students of history than the isolated experience of a single individual—do not think I can answer the question. I would take the statement of the contemporary and hold it suggestive and try and square his statement with known facts, and if I found no other corroborative evidence that would be a statement in a line of evidence that would be given weight by historians.

3130 Q. Wouldn't the statement of a truthful man who had talked with fifty men who had come down from Lake Michigan through the Chicago river, across the portage and down the Desplaines and Illinois to St. Louis, be worth more from the standpoint of the historical critic than the statement of one man who had gone over the route?

Objection, hypothetical question based on no evidence appearing in the record or in the editorial.

A. Would have to take into consideration the conditions under which the statement was made. If we assume that he told the truth and could prove it was the truth, I would give it weight.

3131 Q. Assuming that the man reported correctly his conversation with the men with whom he had talked, isn't that statement worth more than the statement of one that had gone over the route?

Objection, no foundation in the record for the question.

A. I don't know how I would find out whether he was reporting accurately what men had told him; would have to test that in a good many ways as a historian.

3132 With respect to the investigation I made for the purpose of determining whether the man who wrote this editorial had the means of talking with traders who had come down over this route, I said I took that into consideration when I considered that he lived at St. Louis for a number of years, and was making a statement concerning which he would

know something. I have tried to verify it and test it, which I think any historian would do.

To test the editorial it would be necessary to find out whether those boats had been seen at St. Louis at any time,

but if I would find a number of boats in St. Louis I
3133 would have to know still further how they got there;

there were three or four possible routes; I went to a more specific point to find out what trade went down the route particularly in question, and that of which he spoke and which I was testing. I made the statement in drawing my conclusion, that so far as the evidence I had found went, it did not square with the facts. Now, if evidence can be brought up that this was used, and that he was stating correctly, why my conclusion is wrong.

3134 Whereupon counsel for complainant directed the attention of the witness to Semple, page 272 (reading):

> "The same difficulty was present in the waterway of Green Bay, Fox River, and the Wisconsin. The canal connecting the great bend of the Wisconsin with the Upper Fox was only two and one-third miles long, but the sandbars of the Wisconsin, the shallow, tortuous course of the Upper Fox, and the numerous rapids necessitating canals on the lower river, robbed this waterway of much of its value."

I know that the Green Bay, Fox River and the Wisconsin route was a trade route, in spite of all the difficulties which were pointed out; she speaks there of the difficulties of that route as compared with railroad competition, which appears in the rest of the sentence not read by counsel, which is as follows: "And made it succumb rapidly to railroad competition."

3135 There were rapids and sandbars in all the rivers used in these early periods.

Q. So that the mere fact that the river was dry during certain times of the year, and there were shallow places and rapids, does not take away from these streams the fact that they were part of a trade route, as you find it out from your study of history?

Objection, involves elements which do not appear in the citation the question refers to, as the river being dry, and so forth.

A. I understand that they were trade routes in spite of these difficulties.

My first proposition in this case is that the early settlers

followed the river. I did not reach any conclusion based wholly on the point that this Desplaines river could not be used because the early settlers did not use it.

3136 The authorities I cited on the early settlers coming in along the rivers were on the point that where the rivers are navigable they are highways of travel, and that along the rivers settlers came in and settlement was made. They settled close to the river for a number of reasons, among them purposes of navigation. In my study of the settlement of this area, I found no evidence that the Desplaines river was used by the settlers for purposes of navigation.

3137 They began settling all over this northern section in 1833 when the Government began its work upon the harbor here.

Q. And you draw from that the conclusion then that this river could not be used because during this period, 1820 to 1830, settlers did not come in along the river?

Objection, not a fair statement of what the witness said.

A. Not wholly; didn't draw any conclusion upon that in my statement, and before 1830 they had not settled up this far. They came up the river and had not come in by the northern route at all to speak of.

3138 I cited these excerpts from pages 251-257 of Semple to point out that the history of the settlement and of the development of the country was along the rivers first.

In its bearing on the use of the Desplaines river, I think it points out that if the river had been navigable during the period of settlement, settlers would have been found along the river. If they were found along the river it would be a case of where the people would be following the natural law. One of the reasons why they would settle there would be because it was navigable; there would be other reasons.

3139 It would be a line of evidence pointing out that they were following the natural law of development, expansion and settlement.

The map on page 314, Volume 1, Bulletin of the University of Wisconsin History Series, purports to show the density of population in Illinois in 1830. St. Louis was near Belleville.

My attention was directed to the fact that a portion of this map along and in the neighborhood of Lewiston shows six or more persons to the square mile along the Mississippi. With reference to what this map shows about the failure of settlers

to go along the Mississippi, it does not indicate that they did fail to settle some along the Mississippi.

3140 The map is based on the census report; takes the county report and does not show accurately the shade conditions as to where the population would be. I presume from this map that according to the census of that time that settlement was not along the Mississippi to the extent of six or more per square mile. In 1830, when his map was made, counties were, of course, large in northern Illinois and in that part of the military district.

3141 The presence of the Indians prevented the settlements at that time from going further up the Mississippi, and would be one reason for retarding settlement in all that territory. During the period before 1830 they had begun to relinquish the Indian title and then the Mohawk War of 1832 which did drive them farther, made possible settlement to the north. Clearly the presence of Indians would be one of the things which would have to be taken into consideration.

I don't think it is a fact that all this material I have put in about settlers following the river has nothing to do with this problem. I didn't think so when I submitted it.

3142 They might settle along a river even though it were not navigable, as in Peoria county, to get millsites, for saw and grist mills. That would be another reason why they would follow the rivers.

Q. Are you willing to state as your opinion as a historian that the reason, or one reason why the territory along the Desplaines river was not settled during the time to which you have referred in your testimony—

A. Well, namely?

Q. —was because the river could not be used for purposes of navigation, or that that had the slightest bearing whatsoever upon the question of the settlement of the country?

A. There would be a number of things to take into consideration to explain the fact that the territory was not settled. One of them would be the presence of Indians in the early periods. Another would be—

Q. I insist upon an answer to my question yes or no.

A. I will answer the question.

Mr. Scott. He don't have to answer it yes or no.

3143 Mr. Corneau. Yes, if he asks if he is willing to state that as his opinion.

Mr. Scott. He can answer that question.

A. Will you read the question to me again?

(Question read.)

A. Yes, I think that has a bearing. It is one of the things that would have to be taken into consideration. If it were navigable they would settle. They did settle up on the Illinois river as far as it was navigable. They went up to Peoria and settled there and then went still farther up the Illinois river and settled. Now, if the Desplaines had been navigable they probably would have gone still farther. Now, I have answered if yes or no, have I not? Shall I go ahead and give some other reasons why I think that territory was not settled?

Mr. WILKERSON. I am asking you whether in line with what I have called to your attention with reference to those other factors entering into the question of early settlement, you still adhere as a historian to the proposition that the question of the navigability or non-navigability of the Desplaines river had anything to do with the early settlement along the river?

Mr. SCOTT. That question he has answered.

3144 A. I answered it unless you desire me to go ahead and give reasons why it was settled.

Mr. WILKERSON. Q. Then I understand you to say that you do adhere to that position; am I right in that?

A. Adhere to what position?

Q. The position that this did have something to do—

Mr. SCOTT. I submit the witness has given his answer. He has stated in the first place—well, he answered it categorically; therefore there is no occasion for any further question.

Mr. WILKERSON. I do not understand that he answered it categorically or tried to answer it.

Mr. SCOTT. He asked you if he had answered it yes or no, categorically, and you replied in the affirmative. Just read his answer there.

(Record read.)

Mr. WILKERSON. Now, let me have my question.

(Question read.)

Mr. WILKERSON. Read the question omitting what is after the word "or."

Mr. SCOTT. The witness has already answered the question with all that in.

Mr. WILKERSON. Yes, but I want him to answer it without it.

(Question read as follows: "Are you willing to state
3145 as your opinion as a historian that the reason or one reason why the territory along the Desplaines river was not settled during the time to which you have referred

in your testimony, was because the river could not be used for purposes of navigation?")

A. That would be one reason.

When the port at Chicago was improved and it was connected with the east, then population came in by the northern route rather than the southern; and with Chicago as the stimulus they began settling out in this territory
3146 which includes the Desplaines area. In the absence of a good harbor and transportation facilities between Chicago and the East would be an explanation for the paucity of settlement in this region.

Q. You referred in your direct testimony, Mr. Lee, to Hulbert's Historic Highways, Portage Paths, Volume 7; in connection with what you read from that volume, I call your attention to pages 180 and 181, and ask you to read the paragraph commencing at the bottom of page 180.

Objection to the question and to the request to read into the record, as the excerpt requested is not germane to that portion of the book which the witness introduced and read into evidence. Counsel for complainant in each instance where defendant's counsel asked the witness on the stand for the Government to read in other parts of the book having objected that it could not be put in evidence in connection with their case.

3148 Whereupon, after some discussion, it was stipulated that where a passage had been copied into the record it need not be recopied, and may be treated as being in the record, and offered later.

The WITNESS (reading from Hulbert, page 180):

"The Kankakee-St. Joseph route was a favorite one for travelers returning from Illinois to the Great Lakes and Canada. The favorite early 'outward' route was from the western shore of Lake Michigan into the Illinois river. Here were two courses: by way of either the Calumet or the Chicago river to the Desplaines branch of the Illinois. The latter portage was best known and most used. Perhaps no one of the western portages varied more than this in length, as on the best authority it is asserted that sometimes no portage was necessary, and at others a portage of nine miles was necessary: 'The Chicago-Desplaines route involved "a carry" of from four to nine miles, according to the season of the year; in a rainy, spring season, it might not be over a mile; and during a freshet, a canoe might be paddled over

then entire route, without any portage.' When Marquette reached the Desplaines, known as 'Portage river' because it offered a pathway to the Illinois, he was compelled to make a portage of only 'half a league.' The course of this portage is practically the present route of the famous Drainage canal which joins the Chicago river with the Desplaines at Elgin, Illinois."

I would say as to this author's characterization of the authority as the best authority in the sentence "on the best authority it is asserted that sometimes no portage was nec-
3150 essary and at others a portage of nine miles was necessary," that I characterized the book the other day as being a popular history, I believe, did I not? It may have been that he went into that in detail or it may be he did not I would want to test that statement as I would want to test a good many of Hulbert's statements.

3151 My thesis on Transportation as a Factor in the Development of Illinois was submitted to Professor McLaughlin about two years ago. The only change I have made since then has been in the matter of English.

3152 I never had in that thesis any discussion of the Illinois and Michigan canal. The only time I considered this fact was in connection with the development, as I have pointed out in chapter 4 or 5, when it comes in the period after 1850. I used the factors that developed those territories, those two divisions, the prairie of northern Illinois and the military tract; and the prairie of eastern Illinois. The factors that developed that area were the railroad and then the development of the Illinois and Michigan canal. In that connection is the only place I discussed the Illinois and Michigan canal.

My attention is directed to Schoolcraft's Journal of Travels from Detroit * * * to the Sources of the Mississippi River, in the Year 1820. I read from page 384 an entry purporting to have been made August 30th. I am not sure whether I read what immediately precedes it under date of August 29th.

3154 (Upon request of counsel for complainant, witness read as follows from the entry under date of August 29th.) (Reading):

"Chicago Creek is eighty yards wide, at the garrison, and has a bar at its mouth, which prevents shipping from entering, but is deep within. It is ascended eleven miles in boats and barges, where there is a portage of

seven miles across a prairie, to the River Plein, the main northwestern fork of the Illinois.

The intervening country consists of different strata of marl and clay, presenting great facilities for canal excavation, and the difference in the level of the two streams is so little, that loaded boats, of a small class, may pass over the lowest parts of the prairie, during the spring, and autumnal freshets. But at mid-summer, it is necessary to transport them overland, to mount Juliet, a distance of thirty miles. From thence the navigation is good, at all seasons, to St. Louis, a distance of four hundred miles."

3155 Schoolcraft's statement here is that at mid-summer it is necessary to transport the goods overland to Mount Juliet, a distance of over 30 miles. This would have to be taken into consideration with other statements he made; examining that itself, it would show that at mid-summer overland transportation was necessary to Mount Joliet. And that during the spring and autumnal freshets no portage at all was necessary.

3156 I could not put the author's meaning in other words than as he expresses it in this paragraph.

3157 He said that in high water no portage was necessary at all.

3158 In connection with my criticism of Schoolcraft, I have taken into consideration, in testing Schoolcraft, the passage which was read into the record on the part of the Government from "A Narrative of an Expedition Through the Upper Mississippi River to Itasca Lake, etc., in 1832 under the direction of Henry R. Schoolcraft." Transcript page 331 (Abst., 154).

3159 When he passed over this route himself in 1821, Schoolcraft gave somewhat in detail his experience, and the conditions he found there; later in 1832, when he refers to this passage in a general way, he speaks of it as a route from Chicago to the Illinois, and that it is well known. He says "the principal points at which the waters of the Mississippi communicate by interlocking rivers and portages with the lakes, are the following, proceeding from south to north, namely," and then he gives by the Illinois and Chicago creek and names along with that some others, and he says that they are well known.

3160 I think the question which would immediately come up to a historian—it did with me—would be as to whether

we should give greater weight to this reference to a general route which he makes in 1832, or whether we should give the greater weight to the statements which he made in his own actual experience when he passed up in 1821.

3161 I have before me a Schoolcraft's Travels in the Central Portion of the Mississippi Valley, in which he gives an experience going up the river, page 318. I find from the present examination, that Schoolcraft was going up the river in August, 1821.

3162 He left the Illinois at about the mouth of the Vermillion. Answering from memory, the water was low at the time he made that trip. I don't know whether he uses the word "very" or not. I took into consideration the location of the mouth of the Vermillion. He says:

"We reached the mouth of the Vermillion, a fine clear stream entering on the right bank. This point is esti-
3163 mated to be equi-distant between Chicago and Fort Clark, it being ninety miles either way."

Don't know the exact distance of the mouth of the Vermillion from the junction of the Kankakee and Desplaines. If this be correct it would be something like 45 or 50 miles.

In reaching my conclusion as to whether Schoolcraft's general statement was to be overcome by this particular narrative, I took that into consideration along with the other things and noted that he made a long portage, but that he made it at low water and met traders.

3164 As to taking pains to ascertain what the ordinary depth of the water in the Illinois river was at the mouth of the Vermillion at these rapids, I did take into consideration what his actual experience was. I judge that it is clear if the statement is to be found, and I rather think it is, that if there was only 8 or 10 inches of water in the river at that place, and sometimes less than 4, there was practically no water even in the Illinois at that time. The passage, "The water was scarcely eight or ten inches in any place, and often less than four," would indicate that there was very shallow water.

I remember a statement that the Ohio river at that time was entirely dry, but I do not remember what it was read from, or just what year that was.

3165 In determining the weight which is to be given to this isolated experience, I took into consideration that sometimes there was practically no water in the Illinois river, even away below the junction of the Kankakee and Desplaines.

Q. And have you taken into consideration the fact that sometimes even in the Ohio and Mississippi there is not enough water to carry boats?

Objection, no foundation in the evidence for that question.

A. I made an investigation on some rivers through this part of the country, as to whether there was ever a time when the water was so low that the rivers could not be navigated. I think I took that in consideration.

3166 In the Chicago Daily Democrat of October 8, 1849, I find a statement here which says that the Ohio river was too low for transportation. It reads: "These goods could not have reached here in season by any other way, the Ohio being too low for transportation by that route." The general editorial heading is: "The Illinois and Michigan Canal," and that part of it is taken from the Beardstown Gazette.

(Upon request by counsel for complainant, the witness then read an editorial in the same paper, entitled "The Ohio river dried up.") (Reading):

"John Randolph once described the Ohio River, a stream 'frozen over one-half the year, and dried up the balance.' The Cleveland Plaindealer says it is now so low, and has been for some weeks, that boats drawing over 16 inches of water could not run. Of course, all business has been suspended, and a friend, just from Pittsburgh, says the docks there look desolate. No freighting done, and passengers to Cincinnati, are going to Cleveland by hundreds to go via Sandusky.

3167 The great Northern route by the Upper Lakes, is the only feasible, safe and constant means of communication with the South and Southwest. All the goods destined for the Southern and Southwestern markets are coming this way, and shippers and consignees are well satisfied with the way their goods are forwarded. We can do all the business of forwarding on this route much cheaper than it can be done by the Ohio river route, and goods are less liable to damage by exposure," &c.

Q. As a critic of historical narratives, in your opinion, would the statement in the editorial which you have just read, that the Ohio river was dried up at that time, that particular time, overcome a general statement by the same

writer that generally speaking the Ohio river could be used by boats?

3168 Objection, the editorial does not state that the Ohio was dried up at that particular time, whether the question refers to 1821 or 1849. It speaks of it as not being navigable for boats drawing 16 inches of water and quotes a generalization of Randolph referring to no particular time.

Q. Did the statement that it could not be used by large boats at that time overcome the statement by the same writer that generally speaking it was being used by boats?

Objection, the same.

A. One could not draw a conclusion from a specific statement. No historian would do that from a single statement. He would simply take it as suggestive and check it up and see if he could corroborate it.

The gist of the extract I read from Schoolcraft, being the one which begins "At the mouth of the Vermillion river there was scarcely eight or ten inches of water in any place and often less than four," and continuing on the same page, "With great exertions we had proceeded two or three miles above the Vermillion, and

3169 about four o'clock we encamped near a remarkable isolated hill called by the French voyagers Le Rocher and Rock Fort,"—is that finding the navigation difficult they relinguished the design of going further by water; got horses and continued their journey. I judge that the figure 14 on page 332 means the 14th day of the month. I do not know what ford he referred to when he says, "At ten o'clock in the morning we reached the ford of the Desplaines."

3170 All I see now that would throw light upon that was that he says he met several traders who had transported their goods in boats and carts from Chicago creek, and "who informed us that they thought it practicable to enter the Illinois at Mount Joliet," which would rather indicate, as I read it at this time, that this ford referred to was this side of Joliet. It says that they found the river at this ford about 30 yards wide and a depth of water of about two feet. He finds more water there than was in the Illinois at the mouth of the Vermillion, which was at that point, if I remember correctly, eight or ten inches.

I find this statement on page 333, where he says:

"The computed distance from the ford on the Des-

plaines to its union with the Kankakee is about 45 miles; 15 miles of this distance consists of Lake Joliet and the remainder is almost equally divided between ripples and still waters."

On page 332 he says:

"Between this place and the Vermillion where we left the Illinois we have seen the river but seldom although our route has been for the greater part upon its banks. We have, however, seen its channel at a sufficient number of points to determine that it has several long and formidable rapids which completely intercept the navigation at this sultry season."

The significance that I attach to the use of words "at this sultry season" is that it must have been sultry—August. As to the connection in the mind of the writer between the sultry season and the interception of navigation, he was simply pointing out conditions as he found them, and he narrates his experience at that particular time; the only conclusion that could be drawn was his own experience at that particular time.

3172 In the sultry season when the water was low, of course those rapids would appear and it seems they did appear in that sultry season when it was sultry and dry. I should think it would mean that there was some connection between the sultry season and interception of navigation, and that if it had not been for the sultry season there would have been navigation.

"A remark that has been confirmed by meeting several traders on the plains who had transported their goods in boats and carts from Chicago Creek and who informed us that they thought it practicable to enter the Illinois at Mount Joliet."

3173 These traders evidently thought they could enter it at Mount Joliet. Going a little further, he says:

"It has been perceived that we ourselves began it far below this last mentioned point."

3174 There might be an inference to the effect that these traders thought they could enter the river at Mount Joliet at this season of the year, because generally speaking travelers and traders did enter the river there at that season of the year. That was in 1821. It does not say they did enter it. They thought they could enter it. He then says,

"This would lengthen the portage about thirty miles

but it has been perceived that we ourselves began it far below the last mentioned point."

That is forty miles below the junction of the Kankakee and the Desplaines, down at the mouth of the Vermillion.

"This fact is sufficient to show the error of those
3175 who suppose that a canal of only eight or ten miles would be necessary to perfect the navigation between Lake Michigan and the Illinois. A canal of this length would indeed perfect the communication which already exists at certain seasons between Chicago Creek and the Desplaines."

He says,

"This would perfect the communication which already exists at certain seasons between Chicago and the Desplaines."

I would judge from his language that at certain seasons a canal of eight or ten miles would perfect communication, at certain seasons.

3176 He probably means navigation; that is the interpretation I would give. Where he says, "but must fall far short of the grand purpose," I think what he would have in mind there would be to connect Lake Michigan with waters that would be navigable at all seasons of the year. He says it would take a canal longer than eight or ten miles to accomplish that grand purpose. He points out above that this fact, referring to his experience, and that his ideas concerning the navigation had been confirmed—is sufficient to show the error of those who had supposed that a canal of eight or ten miles was sufficient.

Having read the next paragraph "but although" I don't know that Schoolcraft referred to the opening of the canal, which would make possible the navigation of the water-
3177 way by large boats which were then coming into use. I see nothing here in connection with it.

3178 From the reading of this excerpt he says this journey produced a conviction that the difficulty and the expense which will attend this work are greatly underrated. I should put some weight on that; history has confirmed his conviction that the common opinion was wrong and that it did cost a good deal. The Illinois and Michigan Canal as finally constructed did permit vessels, as I understand, to go through drawing something like three or four feet of water and maybe more; I am not sure.

In determining the effect to be given these different statements from Schoolcraft, I think I have taken into consideration the accounts to which counsel has directed my attention, namely that after he made the general statement in his book of 1820 with reference to this portage and the use of these rivers for the purpose of navigation, after he had this experience going up the river in 1821 at a time when the water in the Illinois in places was only four inches deep,
3179 that in his latter works he still referred to this trade route as something which had been in existence for a hundred and sixty years, and which was so well established that it was thoroughly understood.

It is not my judgment, as a historical expert, that the only statement by Schoolcraft entitled to weight in determining as to whether or not boats could be made to go up and down the Desplaines river is this personal account of his in 1821. I would take them all into consideration and give them weight. I would consider his long portage, the meeting of traders who were actually making the portage of what they believed to be thirty miles, but which he believed at that
3180 time was over that; the fact that it was low water, and that he refers to interlocking waters. As I remember the latter reference, he simply referred to a number of portages by which one could reach the lower Mississippi region, and pointed out among others the Chicago-Illinois portage, and is not distinguishing or pointing out details as to how long or how short that portage is. He simply points out a well known portage.

3181 What he relates is his experience at low water. As to whether that would tend to disprove the statement as to the condition of the water at high water, would have to consider Schoolcraft in connection with all the other authorities, and not draw a conclusion in regard to navigability based solely on one authority, if I could find other authorities that would throw light upon it.

I should think that his statement in the book of 1820 that loaded boats of small class may pass over the lowest parts of the prairie during the spring and autumnal freshets, was true.

3182 I judge that it was true that at "midsummer it is necessary to transport them overland at Mount Joliet, a distance of 30 miles." I would take all of his statements into consideration, but not draw any general conclusion based

solely upon Schoolcraft if I could find others with whom I would weigh his statements. In my direct testimony I based my conclusion on his actual experience, and what he found to be true by the meeting of the traders.

3183 Referring to the statement in Schoolcraft's book of 1820, where he says,

"But at midsummer it is necessary to transport them overland to Mount Joliet, a distance of thirty miles. From thence the navigation is good at all seasons to St. Louis, a distance of 400 miles,"

as to whether I have found any statement of any kind which takes back any part of that I would say, that we have his experience on the one hand and his general statement on the other, and I would want to compare those and I can only draw a conclusion by pointing out what his experience was and what his statement was.

3184 The only statement that he makes, as I recall, in regard to navigation below Joliet, is his own experience. I don't recall that I found anything except that experience in 1821, which tends in any way to modify the effect of the statement in the book of 1820.

3185 Nor do I remember having seen any statement after that experience of his in 1821, when there was only four inches of water in the Illinois, where he ever attempted to modify that general statement. I would not say that there were not any or that there were.

The fact that there were traders going down there whom Schoolcraft met would tend to show that there was commerce going to St. Louis via the Illinois river. I recall in that connection also my reference to Ethelbert Stewart, in which he says that in 1818, or 1819, the books of the fur company which may be had, show that the fur trade was just beginning at this period, which would point out that between 1812, the time of the massacre, and 1818, there must have been very little trade.

3186 As to whether, according to my school of historical criticism I would reject the general statement of Stewart and accept the particular experience of Schoolcraft, who met the traders, I would want to get all the evidence I could to confirm the point as to the amount of commerce that was in Chicago and going over the route at that time; then would draw my general conclusion based on all the evidence, giving due weight to any I might find.

3187 Q. Is it not a fact that the statement made by Keating with reference to the Desplaines, Chicago river and the portage, is substantially the same as the statement made by Schoolcraft in 1820?

Objection; whether or not it is will appear from the work itself.

A. He points out in one reference something which I note is substantially the same. He says:

"In very dry seasons it has been said to amount to thirty miles, as the portage then extends to Mount Juliet, near the confluence of the Kankakee."

I believe I recall having criticized Keating, for the reason that I found a conflict in the statements which he made and the statements made by other authors, one of which was with reference to the description of the climate and soil around Chicago, in which I contrasted Keating with Schoolcraft. Another was the conflict between the account found in Keating and some statements to be found in the writing of Featherstonhaugh.

3188 Q. And in this statement of Featherstonhaugh, as I recall it, it is said, in substance, that Keating was wrong and that one Jonathan Carver was right?

Objection, not substance of what witness testified to. He read the extracts where Featherstonhaugh on his own observation pointed out Keating's error, and then made a general statement to the effect that Carver was more reliable than Keating, who forever criticized him.

The WITNESS (continuing): In a general way I know
3189 who Jonathan Carver was. Presume I have not gone into him as thoroughly as he might be studied. From memory, it seems to me he traveled some time in 1778; maybe a little earlier. Have known in a general way that there was some question about the correctness of Carver. There has been some question, I believe, as to whether he really wrote the book or not. Have made no special study of that.

3190 If I were discrediting Keating on the basis of statements made by Featherstonhaugh, I would take into consideration what Featherstonhaugh said as to the accuracy of the observations made by Carver, because there I would have Featherstonhaugh's statement on the correctness of Carver; all those things would be taken into consideration.

3191 Have heard of Professor Bourne, a professor of History at Yale. He was a good man; wrote one of the

American Nation Series, I believe. In my determining as to the weight to be given to statements made by Keating, I would take Bourne's opinion as very good.

3192 I would not put it so strong as that no better historical critic than Bourne has written in this country in fifty years; during that period have had a number of good men, such as Jameson and Justin Winsor. It seems to me Bourne made a little study of Keating. I think I have, in the course of my investigation into Keating's standing, come across information on the part of Bourne, as to the standing of Keating as a writer.

3193 It seems to me I remember this statement by Bourne referring to Keating:

> "To pronounce upon the worth of this part of the book, first hand intimate knowledge of the field of observation is required. This qualification William H. Keating, the scholarly and painstaking geologist and historian of Long's Expedition to the source of St. Peters river in 1823, possessed in a high degree."

I think I took that into consideration when I passed judgment on the credibility of Keating.

Within the last three or four weeks, since I have become interested in this case, I have read the review published in Volume 2, American Historical Review, by Professor Bourne, of the travels of Jonathan Carver. I read it within three or four days; before and after I testified. I read it about

3194 a month ago, when I commenced examining Keating on these various authorities, and again during the course of my examination. Am fairly familiar with it. I think it was quite a careful study on the whole, and entitled to standing in the work of historical criticism.

3195 Since I used it in connection with my study of Keating, it would only be fair to point out what points I considered, and this I can explain by a little analysis of that study.

3197 I took Keating and found out what right he had to speak on the subject for which he was cited as evidence; that is, whether or not he was in Chicago and had been down over this particular route we have been talking about, and what were his sources of information concerning it.

I noted those things in submitting his work to the test to determine its weight as a historical source.

3198 In preparing myself to criticize Keating I took what he said on the subject I was considering and other

subjects and checked them up to see whether his statements on those other subjects were accurate.

Only in the cases I cited as furnishing the most striking instances, I do not recall that I took and followed any other instances out of their source.

3199 I reached the conclusion that,

"The carelessness revealed by Keating in his narrative along the Mississippi river and St. Peters would lead one to conclude that he was careless in all his work."

I should have added probably the carelessness observed in his statements concerning the territory around Chicago.

In testing the accuracy of a statement in a historical work, it should be checked up as fully as possible to find out whether or not the writer was a careless observer.

3200 Did not read all of Pooley's thesis which I referred to. I used it in connection with my thesis in reading my authorities. Have taken certain chapters and gone through these at different times. I have not made a 3201 careful examination of Pooley to test his accuracy. On the whole Pooley would be an accurate work. I can cite authorities to prove that he was so considered. I do not recall any inaccuracies of statement at the present time.

3202 I tried to find out the standing of the book. I did not check up his statements to make a critical examination of them, as I did of Keating.

The statement in Pooley appearing at transcript 2686 (Abst., 1097), which I have read into the record (reading) "Peoria, the oldest town in this part of the state, had been deserted in the closing years of the 18th century." I did not check up for the purpose of determining if it was inaccurate I don't know how accurate that statement is.

3203 As a historical critic, I would have to take that and test it and find out whether it was accurate or not. In connection with this, I did not check up to find out when Peoria was founded.

3204 There was an early ford there and traders settled I should say in the early part of the 19th century. I am not sure. The early settlers at Peoria were French and Indians. Their commerce would be the same as the commerce of the early French and Indians that were along the Illinois river in all these towns.

I did not check up to find out what the course of trade and commerce of the early settlers of Peoria was.

3206 My conclusion as to whether there was trade and commerce on the part of the early settlers of Illinois is that there must have been commerce immediately after the country was settled. In reaching that conclusion I did not consider that statement on Pooley nor did I cite Pooley in connection with this subject.

3207 My attention is directed to page 2691 of the record, the last paragraph:

"The importance of communication is shown by the fact that the chief cities, Quincy, Peoria, Rushville, Peru, Ottawa, Joliet, Elgin, St. Charles, Rockford and Galena were on or near the river."

As to whether in my opinion as a historical expert that passage tends in any way to show that the Desplaines river was not used by the settlers of Illinois prior to 1850, I

3208 would say I understand this simply to be a general statement which relates to the importance of communication and cites as evidence to the conclusion which he is drawing, the fact that these various cities were on lines of communication.

Q. Now, will you please read the question, Mr. Commissioner. It was a perfectly plain question and capable of a direct answer.

(Question read.)

A. Why, as I read this over in the light of the question which you have read I do not see that it throws light on that subject, and that was the answer I had in mind when I answered you the first time. It was not my purpose to evade that.

Q. Then your answer is it does not tend to show it in any way?

A. I do not think one could draw a conclusion one way or the other from that general statement.

Q. I am not asking you whether you could draw a conclusion from it; I am asking you whether it tends to show it in your judgment?

A. I think I have answered that—

Q. That it does not?

A. (Continuing)—in my general statement that you could not draw a conclusion one way or the other.

Q. Do you recognize as a historical expert any difference

between an authority which establishes a thing and a statement which tends to establish it?

3209 A. An authority which establishes a thing and an authority which tends to establish a thing?

Q. Yes.

A. It is pretty hard to say that any one particular authority establishes a thing.

Q. Now, you have said that that does not establish it. I am asking you whether it tends to establish it or not?

A. Tends to establish what, the navigability of the—

Q. No, just read the previous question, the latter part of it.

(Question read as follows: "In your opinion as a historical expert does that passage tend in any way to show that the Desplaines river was not used by the settlers of Illinois prior to 1850?")

A. Well, I think I have answered that by saying that I do not know that that throws light upon it. It is simply making a general statement—he is simply making a general statement there, Mr. Wilkerson.

Q. I am not asking you what you did not know; I am asking you to give us your judgment as to what you do know.

Mr. SCOTT. I object that the witness has answered. When he says it does not throw any light on it is is the same as a categorical answer. Whether it does or does not throw any light on it, he has answered the question.

Mr. WILKERSON. Then do I understand you to testify that you did not consider that passage at all when you gave

3210 your testimony with reference to the trade and commerce on the part of the early settlers in northern Illinois?

A. No, I did not consider that in that connection.

I did not say that I had checked up in connection with the trade and commerce to find out the time at which Peoria was settled. It is my general recollection that it was established at an early date, as a French trading post; that is, after the French commenced coming into this western country, the earliest record of which was in 1673.

3211 I do not know when Peoria was established. I should say it would be within fifty years of that date, or sometime before 1700.

3212 There was settlement along the Illinois river, as I understand it, at Peoria, during the early period, that

is between 1673 and 1700, or thereabouts. After 1700, because of the Indian wars, from 1702 or 1703, down for the next half century there was not a great deal of settlement along the Illinois river.

Schoolcraft, I remember, says in 1721, that even the Indian population along the Illinois was so scarce that one often wondered if the early French writers had not overestimated the population when they wrote concerning that early time. I mean, 1821, for Schoolcraft. There would be nothing in that to indicate that this had been abandoned prior to 1721. I simply located him too early.

3213 Joliet was established when those early French towns were established. I don't have the exact date in mind. I do not believe Joliet was one of the early French towns.

Have not read through Ford's History of Illinois referred to on Transcript 2692 (Abst., 1100). I know that there are some inaccuracies of statement. I did not check it up with this particular test for that purpose. I have never read the book through. Have used it for reference work and gone through it at different places at the time I wrote my thesis.

3214 Do not know how many pages I have read. I did not use it to find inaccuracies in this connection.

At Transcript 2695 (Abst., 1102) is a statement from Ford:

"In the year 1818 the settled part of the state extended a little north of Edwardsville and Alton."

Q. Is it your opinion as a historical expert that the statement of Ford's just read tends to show that the Illinois river was not capable of being used for commercial purposes in the portion of the state above those towns?

Mr. Scott. That is objected to on the ground that it is but a portion of the statement as to what was the settled part of the state.

Mr. Wilkerson. Well, read the whole paragraph. I had read what I regarded as pertinent on that subject. If you find anything more in there that is pertinent on the question of settlement in Illinois, please read it into the record. Do you find anything else that is pertinent on that subject there?

A. On the subject of the test?

Q. On the subject of the settlement of Illinois.

3215 Mr. Scott. Just read me that question, Mr. Satterlee, will you?

(Previous question read.)

Mr SCOTT. Further objection on the ground that the excerpt was not read on the direct as evidence, or having any bearing on the question of whether or not the Illinois river was capable of being used above those towns.

Mr. WILKERSON. I am asking you now your opinion as a historical expert as to whether that tends to show that it was not capable of being used above those towns.

A. The conclusion which you are drawing there is not the conclusion which I drew or the line of evidence for which that was cited.

Q. I am asking you to draw it now.

A. The conclusion which I would draw was that settlement comes in along the navigable rivers—

Q You have not answered my question.

Mr. SCOTT. Go on with your answer, Mr. Lee.

Mr. WILKERSON. I am asking you as a historical expert to tell me what conclusion you draw as to whether or not that tends to show that the Illinois river above those points was not capable of being used for commercial purposes.

Mr. SCOTT. Now complete your answer. Counsel cannot know whether your answer is going to be an answer to his question until it is all in.

3216 A. And that it came in, historically in Illinois, along the Ohio river and then up the river running into the Illinois and the Mississippi river. That in the case of which you have asked me, settlement going up those rivers, had gone up by this time only to that point. It may have been navigable further. To draw a negative conclusion of that, I have not done so.

Mr. WILKERSON. Now I move to strike out the answer of the witness as not responsive to the question, and I ask that the question be read again to the witness, and I ask the witness to answer the question.

Mr. SCOTT. I object to the question because the witness has expressly stated that it does not appear from that whether the stream was navigable above the point to which settlement had then extended.

Mr. WILKERSON. I submit from the record there was no such express statement on that point. Do I understand you to say there is nothing in that which tends to throw any light whatever on whether the Illinois river above that point was capable of being used for commercial purposes?

A. I would not want to draw a positive conclusion upon a statement of that kind one way or the other.

Q. Would you want to draw any conclusion?

A. From that mere statement?

3217 Q. Yes.

A. Why, Mr. Wilkerson, I do not know that I would for this reason; there were evidently navigable waters that were not settled. Take it in 1800, there were some navigable waters that were not settled, and settlement was coming down these rivers and was coming up the rivers that were navigable, and they came up settling along the Illinois river in 1818, and had gotten that far. They might have gone farther.

On page 2730 of the record (Abst., 1115) I refer to this language in Ford:

> Commerce from 1818 to 1830 made but small progress. Steamboats commenced running the western waters in 1816 and by the year 1830 there were one or two small ones running on the Illinois river as far up as Peoria and sometimes further. The old keel boat navigation had been disused; but as yet there was so little trade as not to call for many steamboats to supply their place."

In my study of trade and commerce through Northern Illinois territory, I did not make an exhaustive study of the old keel boat navigation. Though in connection with my thesis I ran across references to the use of keel boats in carry-

3218 ing on the commerce of early Illinois. That is, what commerce there was in the early period before 1800, the period which Ford refers to as the period of old keel boat navigation.

I tried to find out what commerce went down this possible route, the Illinois river. I tabulated the kind of vessels or the manner in which they went down and found what statements I could throwing light upon the use of the rivers for commerce, whether they went down in keel boats or otherwise.

3219 I don't know how long the period of keel boat navigation endured.

Q. I want to know what you have done to inform yourself on the subject of what Ford meant when he referred to the "old keel boat navigation"?

> Objection. Question assumes that there was a period of navigation definitely known as "keel boat navigation."

The WITNESS (continuing). I have stated that during this early period there were keel boats and other methods of transportation upon the rivers.

3220 Don't know that I can define the keel boat or describe it.

An editorial from the Peoria Register and Northwestern Gazetteer, transcript 2697 (Abst., 1102) which I read on my direct examination was written by the editor of the Peoria Register; a man named Davis.

In connection with my thesis, I had studied the Peoria Register and know that Davis made trips all through Peoria County and this Northern Illinois country to bring into his paper the result of his knowledge and his travels through it.

3221 Don't recall how long he lived here. It is my recollection that it was a number of years. He states in his editorials that he made these travels. Papers would be considered as primary sources. I regard the editorial as a primary source of information.

3222 He is speaking about the commerce of the town and along the river at the time he was writing.

McCarty, whom I referred to as the author of "Territorial Governors of the Old Northwest," was in the University of Iowa and wrote this book while he was there. I think he was on the faculty working in connection with Shambaugh. Have taken no steps to ascertain his training at the time he wrote this book. That would be a factor to be taken into consideration in determining the weight of his statement.

Don't know what other books he had written before this one.

3223 I have not examined the book critically. I do not recall finding any errors or a statement in it in conflict with other historical authorities. I presume there would be.

3224 There are likely to be mistakes in any work that would be worked out even most carefully. In using source authorities, I would weigh the evidence and take it for what it is worth. In my previous characterization of this work I have stated the weight I gave to it.

3227 I would take a statement from McCarty as suggestive and would want to corroborate it by such men as Turner and other men before I would draw or base a definite conclusion. I would not base a conclusion upon any one statement which I would find in McCarty.

3228 At transcript 2700 (Abst., 1103) I referred to Benton's Wabash Trade Route. I used it as a reference but have not read it through. Perhaps I used a portion of it a year or two ago when I was studying but never made any critical analysis of it for the purpose of determining whether or not it contains any inaccuracies of statement. I presume it has inaccuracies. I did not base a conclusion upon it solely.

3229 I would use it as suggestive evidence and base my conclusion upon a series of authorities which I would get to corroborate the statement. If I find such men as Turner, Semple and other writers on Western history corroborate it, it would be submitted as evidence.

3230 Q. Now, in order that we may apply to these statements in Benton some of the tests which you say you applied to Keating, I will ask you to read into the record, commencing on page 9:

The WITNESS (reading): "The earliest expeditions from the French settlements on the St. Lawrence to the upper lakes followed the course of the Ottawa river rather than the upper St. Lawrence. Successive expeditions pushed the route farther west until under the leadership of such intrepid explorers as Jean Nicollett, Allouez, and Marquette there was developed about the middle of the seventeenth century what may be regarded as a westward highway for the French, continuous from the settlements on the lower St. Lawrence to the Mississippi valley. The voyagers' canoes followed the Ottawa river from Montreal then by portage to Lake Nipissing, and to Georgian Bay, an eastern arm of Lake Huron, and thence by the northern lakes to Green Bay, the Fox, and by portage to the Wisconsin and Mississippi Rivers. It was the most natural route because in every way it was the line of least resistance. It avoided the near

3231 approaches to the Iroquois Indian limits and led directly to the numerous Indian haunts around the greater lakes. As the objective point for the westward expeditions was gradually moved farther south in the Mississippi basin, shorter routes across the territory, later known as the Old Northwest, were used. The Wisconsin portage soon yielded in point of frequency of use to those at the south end of Lake Michigan. The route up the Illinois river and by portage into the Chicago river and Lake Michigan was followed by Joliet and Marquette on their return from the discovery of the

Mississippi. A few years later La Salle followed the coast of Lake Michigan to the St. Joseph river and up that stream, thence by a portage to the Kankakee, and so again to the usual destination—points on the Illinois and the Mississippi.

About this time, in the course of the evolution of new routes leading to the Mississippi, occurred the first use of the Wabash river by white explorers. This stream was occasionally reached in the earliest period by leaving Lake Michigan on the St. Joseph river and then by a short portage to the headwaters of a northern branch of the Wabash, but the more important way to reach it was by the 'Miami river of Lake Erie' and a short portage. Of the five great portage routes, this
3232 was the last one to come into general use by the whites. It proved to be the shortest route connecting the lower French posts on the Mississippi with those on the St. Lawrence and has been quite happily called the Indian Appian way. It was a common highway for the various Indian tribes of the Northwest. The French routes were in almost all cases the watercourses, portage paths, or overland trails in earlier use by the Indians, who now became the guides. The portage from French creek to the Allegheny was used by La Salle, but its importance dates from a much later period, when it came to connect strategic points on the English frontier. In the race with the English for the occupation of the interior, the French gradually drew the cordon tighter. The paramount task for them was to keep in ready and rapid communication with one another and with outlying posts their two commercial and political centers, Quebec and New Orleans."

The foot note is "Winsor, Narrative and Critical History, Vol. IV, p. 224," gives the following:

"(a) Green Bay, Lake Winnebago and Fox river to the Wisconsin river and to the Mississippi.

(b) From the upper end of Lake Michigan, the Chicago river, and a short portage to the Desplaines and Illinois rivers.

(c) The St. Joseph of Lake Michigan, a portage to the Kankakee and so to the Illinois river again.

3233 (d) The St. Joseph river to the Wabash by a longer portage and then down to the Ohio and Mississippi.

(e) The Miami of Lake Erie, a portage to the Wabash and down as above."

In order to make a careful test of that I would have to do as I would with an excerpt from any other book, to make a comparative study of statements I would find in other places.

The first part seems to be correct where he refers to the general movement on the St. Lawrence river and then to the west by the way of the Wisconsin, Green Bay route as first; as to whether the Wisconsin portage yielded to the use of the southern route and when that yielding was, I am not certain.

3234 I say from my general knowledge it is correct. I am not sure whether it is or not. I have no reason to doubt its accuracy, as I don't know whether or when the Wisconsin did yield to the southern portages down by the way of the Illinois river. That the southern route was used is clear. My knowledge was that most of the commerce went by way of the northern route, Green Bay, Wisconsin. I have not checked that passage. One reason I hesitate to except that statement is that if they came down the southern route about 1700 they would have met the Indians that were warring in Illinois and by coming to the southern part of the lake they would meet storms. There was no harbor there at all.

I find that was true from the original engineering reports of 1832 and on.

3235 I find some reference in Keating that there being no harbor, there was but little commerce at Chicago. I do not know that I can locate the various tribes of Indians; they moved about at different places. Do not know that I can tell where this Fox Indian war was. The Indian wars
3236 of the different tribes were down along the Illionis river.

I find a further reference in this in a footnote taken from Winsor's Narrative and Critical History where there is a reference to one of the routes as being from Lake Michigan, the Chicago river and the short portage to the Desplaines river and Illinois river. I cannot test the statement as found in Benton as to accuracy by merely reading it over once. I have found reference to the portage; sometimes portages to the Desplaines river and sometimes reference to a portage from the Chicago to the Illinois river.

3237 Winsor's works are recognized as being good; he was a very good man. I have not put Benton in the class I would put Winsor's works. I would call Winsor a care-

ful writer. It is pretty hard to put historians in a class. Winsor had acquired a wide knowledge of history and bibliography and has published widely.

3238 It is hard to make comparisons.

I would say Semple was a careful writer. Winsor has published more widely and knew more general history and his book has a good reputation. I have referred at transcript 2707 (Abst., 1107) to Turner's Rise of the New West. The use of the words, "New West," would indicate that he was dealing with the development of the west, meaning west of the Alleghenies.

3239 Turner treats the frontier movement as being constant, never fixed, but shifting. The original frontier was east of the Alleghenies. Settlement was along the various rivers that flow into the Atlantic, and finally came up then and over the Allegheny moutains. So it would depend upon the time you are speaking of what the old west would be. At the present time, I presume the old west would be this territory east of the Mississipi as compared with the west beyond the Mississipi.

I have used Turner's New West as a reference book. I have not personally put it to the test or carefuly examined it. I know its standing among historians. Probably there would be inaccuracies even in Turner's work.

3240 I do not recall any now. I did not subject it to a test that one possibly ought to before they would draw a definite conclusion upon it. I know what the reviewers think of it, and the general standing of Turner and his books. He has a good standing, and is recognized as an authority and his conclusions are, generally speaking, accepted by historians as entitled to great weight. If Turner's conclusions would be found wrong after subjecting it to a test, the result would be the same as in case of any other man's error.

3241 His judgment upon facts relating to Western history would be good. If Turner reached one conclusion and somebody else drew a different one, Turner's conclusion would carry weight, but if two noted historians differed in opinion and a third wanted to know which was right, he would make a study of it. For example, if upon the same state of facts, the same historical references, Turner reached one conclusion and Hulbert, for instance, another, many historians without making independent investigations consider-

ing only the reputation of the men, greater weight would attach to Turner's conclusion.

3242 Taking the time before Turner wrote this book, 1818 to 1829, the early settlers of Illinois were of different nationalities and came from the south, Virginia, Ken-

3243 tucky, and other southern sections. The French began settling at these places and we find that at the time that George Rogers Clark made his expedition he found the French and Indians living together. They had intermarried and were living in these towns along the Illinois river.

3244 I made no particular study on the subject of trade and commerce in the settlements of Cahokia and Kaskaskia and the nature of the business and commerce that was conducted from those places. I have forgotten when those towns were established.

COUNSEL FOR DEFENDANT. The first French Kaskaskia was on the Illinois river near Ottawa.

3245 I know there was a Kaskaskia, but don't know whether or not the first town by that name was on the Illinois river. The French were carrying on quite an extensive fur trade during that period concentrated primarily at New Orleans, as it had even from the earliest period down until after the English had gotten hold of this Illinois country.

3246 Du Pratz tells us something about this subject on trade and commerce throughout Illinois from the time it commenced here. Have read Du Pratz but have not made a critical examination of his work. Don't know that I would want to say exactly what his standing is. As to whether he is generally accepted among historians as stating facts correctly with reference to this history of this period, I would want to subject his statements to tests that I would subject statements of other men to.

3247 Would get all the information I could concerning that early period. Have examined in a general way these early writers. Heward's Journal tells us about a trip he made here at a later period. Hubbard tells us about a trip through this country in the fur trade. I would not check Du Pratz with Hubbard.

I would want to make a study of the authorities. I have pointed out Heward's journal to give an idea of the commerce of those early periods.

3248 After which would check it with the facts as I could find them from checking of the various authorities. Would look into all of them as carefully as I could.

As a historical critic to determine whether the statements in DuPratz were accurate or inaccurate I would find out
3249 who his contemporaries were and whether DuPratz had a right to speak about this early period. Would find out what his own experience was and his knowledge of the commerce of this particular period and would weigh his evidence and see if his statements were prejudiced.

I have applied those tests to Hutchins, cited by the government which I criticized. I did not apply it so carefully to Darby as to some of the others.

3250 I applied probably all of them to Imlay; enough at least to determine in my mind what weight his statements would have.

To determine who were the contemporaries of DuPratz I would go to some of the manuscripts that are not published yet.

Morgan was a trader in Illinois. Was a little later than that period, about 1764, or a bit later. From memory, Morgan was a trader in Illinois that the Englis[illegible]t into this territory. A Pittsburg firm sent him here to ge[illegible]ntrol of the fur trade of the Illinois country.

3251 I believe his headquarters were at Fort Chartres in the general territory across from St. Louis.

In a general way, I know Morgan was trying to get the trade into the hands of the English and direct it up the Ohio to Pittsburg. The French were coming into Illinois territory and practically taking the trade from Morgan and those various traders sent out by the English and were sending it down to New Orleans as they had always done. I am drawing now from my general knowledge of the facts.

3252 To get this information, I would refer you to Carter's Illinois Country from 1763 to 1764, which deals with the subject. He wrote this book under the supervision of the men at the University of Illinois. In his preface he expresses his gratitude for aid and encouragement to Professor Evarts B. Green in whose seminar at the University of Illinois the essay was begun and to Clarence W. Alvord, whose intimate knowledge of the field had been of material assistance through his study.

3253 Evarts B. Green is not a contemporary of DuPratz. I would go to the manuscripts of Hutchins in the Pennsylvania Library, unpublished.

My previous answers will answer the question as to what work I have done in preparing myself to give the information

in this case with reference to the nature, extent and
3254 course of the commerce which was carried on by the French settlers in Southern Illinois throughout the period commencing early in the eighteenth century and running to about 1820. I have not checked up DuPratz. At the time I cited DuPratz I told you I was simply citing him from my general recollection.

3255 I would cite Carter's Illinois Country as a reliable work that deals with the general subject and conditions of trade.

My attention is directed to the statement from Keating and a statement of Schoolcraft relating to the soil and climate, which counsel states I have said is in conflict in such a way as to discredit Keating. (Transcript, 2855.) (Abst., p. 1161.)

3256 The specific locality of which Keating was writing was Chicago and vicinity. Just what he means by that is not clear. How much he would include in it, I do not know. He says: "There are also a number of destructive birds of which it was impossible for the garrison to avoid the blackbirds that committed depredations upon the cornfields there."

3257 My general knowledge is and the facts seems to be that the nature of the soil at Chicago as it then existed was such that agriculture and gardening could be carried on here. The side of the old fort was swampy and marshy. The present land here is made land, all along the south side as far out as the University of Chicago.

3258 I never made a careful examination of the exact nature of the soil here in Chicago.

The site of the old town was right here on the Chicago river. I presume we had winds then as we have now coming from the lake. There was very little agriculture in Chicago previous to 1830 or in northern Illinois. The reasons being that the population did not come until the after harbor was built in
3259 1822 and 1823. There were not many farms within ten miles of the old town of Chicago.

Chicago might be inundated in the region between here and to the west; was inundated in the spring. The statement in Keating, "But even with all these exertions, the maize seldom has time to ripen" seems to me as a historical critic to be inaccurate.

3260. I think that is the most notable inaccuracy in this connection. We do raise corn and the seasons are about the same to-day. I don't know just how near but I presume it has been raised in the city. I do not think the statement

where he refers to the exposure to the cold and damp winds which blow from the lakes with great force during most of the year, would injure gardening or agriculture at that time. It does not now to the extent that you cannot raise maize at least.

Q. "The difficulties which the agriculturists meet with here are numerous; they arise from the shallowness of the soil and from its humidity and from the exposure to the cold and damp winds which blow from the lake with great force during most of the year." How would you think that would apply to Jackson Park?

Objection; immaterial.

A. Jackson Park is not the original soil, as I understand it, and you would have nothing there that would apply,
3261 so far as the shallowness of the soil was concerned.

I should not think you would have to go back six or seven miles from the lake in order to raise maize because of cold and dampness.

The winds that came off of the lake and the exposure to them is one of the factors that have to be taken into consideration, but trees and corn do grow. I should not
3262 think that the cold and damp winds mentioned by Keating were sufficiently strong so that vegetation could not grow here at that time.

Keating does not say it would not grow at all; he names a number of difficulties.

3263 He says, "The best comment upon this description of the climate and soil is the fact that with the most active vigilance on the part of the soldiers it is impossible for the garrison, consisting of from 70 to 90 men to subsist upon the grain raised in the country." Then he names those difficulties.

To determine the accuracy of that statement I have tried to square it with my knowledge of the facts and descriptions given by men of the time and contemporaries. Schoolcraft, Transcript, 2858 (Abst., p. 1162), says, "The country around Chicago is the most fertile and beautiful that can be imagined." I would judge he was speaking of a somewhat larger area of country.

3264 Evidently to the mind of Keating, they were speaking of the same territory, because he refers to Schoolcraft and makes a contrast between the conditions Schoolcraft pictured and those he himself found. Keating says:

(Transcript, 2855; Abst., 1161): "We were much disappointed at the appearance of Chicago and vicinity; we found in it nothing to justify the great eulogium lavished upon it by the late traveler, who asserts that it is the most fertile and beautiful country that can be imagined," etc. He then refers to Schoolcraft and points out the differences.

3265 Schoolcraft I think was writing in 1821 and Keating, if I remember correctly, in 1823. There might be some difference in the seasons.

Q. Now treating what Keating says as the site of Chicago and the country directly connected with it, and treating what Schoolcraft says as a general description of northern Illinois, having in mind what he says in the second sentence where he says there are a number of clear streams and rivers which throw their waters partly into Lake Michigan and partly into the Mississippi river, do you still think that there is such a discrepancy between the statements of Schoolcraft and Keating as to justify your conclusion that other statements of Keating are to be discredited because of the alleged inaccuracy in connection with this description?

Objection; the question does not represent nor is it based on what Schoolcraft says; he does not speak of northern Illinois; he speaks specifically of the country around Chicago.

3266 A. I still think that would be one of the lines of evidence to point to his carelessness. I have cited others that would corroborate this one line and I have pointed out specific things which I had in mind there when I called attention to the statement he made. Considering this one discrepancy, I would simply hold it as evidence that Keating was careless. I do not know as I would draw a positive conclusion based on this one line of evidence discrediting him. Were I writing a book and it could not be corroborated I would append a footnote that I found signs of certain inaccuracies.

3267 Schoolcraft says, "Diversified and gentle slopes sometimes attaining the elevation of hills." We would find bluffs along the Desplaines river. I do not know how far from Chicago. The general area around there is flat. Keating calls attention to the fact that Schoolcraft was describing conditions which he did not find.

Q. Isn't it possible Keating may have thought that Schoolcraft was describing the country right at Chicago and may

have pointed out the reference which he gave with that
3268 in mind, the fact being that Schoolcraft described a larger country and that Keating had misunderstood the country he was describing?

A. It might be possible he would put a different interpretation upon it from what you have.

He not only expresses disappointment because Schoolcraft's description had lead him to expect something different at Chicago, he goes ahead and points out difficulties and names them specifically.

3269 Schoolcraft has been considered a good historian and I think the presumption, without making a study, is in favor of accepting Keating because of his official position and the training he had, but such a presumption could not stand against fact which are stated and which may be brought to light upon further investigation.

Q. With respect to the general statements of Keating and Schoolcraft concerning the use of the Desplaines
3270 river, which do you think is entitled to the higher degree of credibility?

Objection; assumes there are general statements of Keating of actual use of the Desplaines river.

COUNSEL FOR COMPLAINANT. The question was with reference to use not actual use.

A. I refer you to my direct testimony on that point.

Schoolcraft was in a better position to know concerning the use that was made of the river than was Keating, so I would give greater weight to Schoolcraft's statement.

At transcript page 2859 (Abst., p. 1163) is a reference to a place given by the French a certain name which is there translated or interpreted "The mountain which is steeped in water."

3271 I do not know whether that is a correct translation of the French. I would refer that to a linguist.

I testified with reference to these two translations of Charlevoix. As to the basis of my statement with reference to the correct translations of Charlevoix, I submit the testimony and the translation. It would have to be tested by a French student. To my knowledge I conclude it was correct. I had read that part of it.

Q. Having in mind your critical analysis of this
3272 passage of Featherstonehaugh what in your opinion was the origin of the name of the mountain there referred to?

Objection; no critical analysis was made of this passage or deductions drawn from it; Featherstonehaugh's criticisms of Keating were merely read.

A. Featherstonehaugh stated that the place was inaccurately described. I do not know the probable origin of the name of the mountain. Have not made an analysis of the original of that name at all.

3273 My attention is directed to the Geological Report by Featherstonehaugh, page 129. The passage reading; "It is evident that the Mississippi has once passed north of this out-lier, has covered the prairie, then a lake, and has coasted the distant eastern bluffs. This affords another incontrovertible instance of that remarkable reduction of the fresh water level of this continent, before alluded to, at which period the contracted channel left the then lake, and cut off the Trempe a l'eau from the right bank. Ompedo Wakeen, brother to Wabeshah, a celebrated chief of a neighboring band of Nacotahs, told me, on the evening of the day I visited the place, that the Indians called it Minnay Chonkahah, or Bluff in the water, and that they resorted to it at the beginning of the wild geese season, to make offerings to Wakon, or the deity, for success in hunting.

3274 A few miles higher up, there is another prairie on the right bank, where Wabeshah's band have their lodges; and about half way from this place to Lake Pepin, is another, on the same side of the river, still more extensive, and bordered with cedar trees."

From the passage, "It is evident that the Mississippi has once passed north of this out-lier" I presume that at times of high water the overflow passed on the other side from where it now runs.

The inference from the statement is that the Indians resorted to this place in the hunting season to have religious rites.

3275 From the statement that the water had covered the prairies and the lakes, I judge that sometimes this mountain or bluff was, as I understand, all water.

I do not know that the inference is to be drawn that the mountain was surrounded by water at the beginning of the wild geese season.

Don't know whether that is to be found there or whether he is referring to an earlier period when the first water level

was higher than it is now. I would have to know more of the context and more of the region up there to draw an inference.

At Transcript, 2860 (Abst., p. 1163), in the passage heretofore read into the record by me, "The same constant character of the valley is observed here, a rich bottom two or three miles wide, broken into islands and swamps and
3276 ponds," I know what is referred to as "bottom lands."

I believe there is a distinction between first bottom and second bottom land. When he speaks of rich bottom two or three miles wide, I do not know whether he means that all of that bottom is overflowed or not.

Q. Calling your attention to the statement that it was broken into islands, swamps and ponds, would you say he meant first bottom or second bottom?

Objection; incompetent and immaterial.

3277 A. I do not know that I am here to draw any conclusions as to what kind of bottom was there referred to. He would refer to the bottom land that would be wet and swampy, and there would be ponds of water there; perhaps hillocks entirely surrounded by water.

I have made no test of the actual land to find out whether or not Featherstonehaugh has correctly stated the characterization of this spot by Keating. To test the accuracy of Featherstonehaugh's statement have tried to find out what his standing was, what right he had to speak in regard to the land to corroborate one or the other of those men by other lines of evidence.

I found that Featherstonehaugh was a reliable man holding equal official position with the man he criticized.

3278 I do not know whether he held a better position; he was on two or three expeditions. One along the Arkansas river and two others as a government employe. Was engaged by Great Britain in the Webster-Ashburton controversy. Among Government officials I found that Cass praises him highly, and states that he is editing a paper that is very reliable and deserving of greater support than it has secured. I found further that he had with him the travels of men who had preceded him, such as Carver and Keating and was making comparisons continually. From my reading of the evidence, I found out Keating's official position and training and verified my information.

3279 I found Professor Bourne referring to Keating as reliable authority. I recall no other similar passages,

though I tried to find them and I gave these men as fair a critical analysis as I could.

I tried to find out what the fact was concerning this conflict and found one citation which I do not now recall.

3280 To resort to primary sources of information for determining which was correct before criticising this particular passage of Keating's would require a knowledge of the land, which I have not, and which Professor Bourne says he has not.

I am not sure that I have examined the passage from Keating referred to by Featherstonehaugh. I think not.

3281 I cited Featherstonehaugh as pointing out that he was careless and the reasons why he was careless.

3282 Did not reject Keating wholly on what Featherstonehaugh said Keating said. I took another line of evidence to find out whether Featherstonehaugh was capable of speaking on that. Featherstonehaugh refers to the passage in Keating, Vol. 1, page 271. Before stating my conclusions with respect to this passage, I think I went back and

3283 verified it. If I could see the passage probably I could state. Cannot find it. The citation is incorrect. It does not tell the edition here.

The passage on pages 280 and 281 of the volume of Keating which I hold in my hand does not seem to be the exact reference.

Whereupon counsel for complainant read as follows, p. 280:

"On the evening of the 28th, the party reached the spot which has been described, by all travellers, as a great natural curiosity, though, in fact, it presents nothing extraordinary. It is termed by the voyagers, the

3284 Montagne qui trempe dans l'eau. This, which we understand to be but the translation of the Indian name for it, means 'the mountain that soaks in the water.' It is a rocky island corresponding with the adjoining bluffs, and separated from the left bank of the river by a narrow sluice. This insulated portion of highland appears, when seen from a distance to stand in the middle of the stream, and its base is washed by the water; but on approaching towards it, it is found to be very near the east bank of the river; and as well as the party could judge from the opposite bank, along which they were coasting, there was at that time, but little or no water between the 'mountain' and the left bank. Pike has, in his journal,

stated its height at about two hundred feet; from a trigonometrical admeasurement of it, made in 1817, Major Long estimates its elevation at five hundred feet; although his instruments did not allow him to take his measurements with the greatest accuracy."

The WITNESS. (continuing): This mountain referred to on page 280 of Keating is probably the same one Featherstonehaugh is referring to. The name is a little different. The English "the" being used for "la."

3285 I do not believe I have ever seen the particular passage just read. If so, I did not read as much as you have.

Q. As a critic of historical material do you find any serious conflict between Keating's statement that "As well as the party could judge from the opposite bank along which they were coasting" there appeared to be little or no water between the mountain and the east bank of the river and Featherstonehaugh's statement on the same subject which you introduced in the record?

3286 Objection; the statements will determine for themselves; no deduction by the witness is necessary; it is not a historical matter but a topographical description.

A. As to what difference there is would have to have more time to determine because it is evident from Featherstonehaugh's report that he conceived that there was a difference in the description. It might have occurred to a historical critic that Featherstonehaugh might have been inaccurate and Keating accurate, but he would have to corroborate the two men.

I did not examine this book to make a comparison before I rejected Keating.

3287 Keating says:

"It is a rocky island corresponding with the adjoining bluffs and separate from the left bank of the river by a narrow sluice. This insulated portion of the highland appears when seen from a distance to stand in the middle of the stream and its base is washed by the water, but on approaching towards it, it is found to be very near the east bank of the river."

Featherstonehaugh says:

"It is in fact an isolated bluff about a mile and a quarter in circumference, separated from the right bank and not from the east. The intervening space being occupied by the present main channel, and as well as the party
3288 could judge, from the opposite bank, there was at that

time but little or no water betwen the mountain and the left bank."

Keating uses the word "appears." It is simply a conflict in detail. I believe the only point Featherstonehaugh was trying to make is as he says, "This error was no doubt occasioned by the writers' looking at it from the right bank and not stopping to examine it," which is pointed out in Keating's excerpt itself. Keating stated what appeared evidently to him, and does not indicate whether he stopped to examine it or not.

3289 Keating says, "On approaching towards it, it is found to be very near the east bank of the river."

He speaks of it as it appears when seen from a distance, but on approaching towards it, it is found to be near the east bank of the river. It would simply be one line of evidence that would point out that he did not take time—

3290 Q. Has he not been very careful to state just what he did do in the way of making an investigation?

Objection; whether he was careful or not appears from the passage.

A. It is not quite clear whether he did stop. I would judge that he did not make a careful examination of it. I do not know as I would state that he was careful to say that he had not. He describes the situation as he saw it.

3291 I would call it a statement of a fact which Featherstonehaugh found was not true, according to Featherstonehaugh's statement. Whether it was true or not, since I have made no examination of the particular ground, I could not state.

Motion by counsel for complainant to strike out as not responsive.

I do not know that that would indicate carelessness. The question would be as to whether his observations were correct or not. I am not sure whether I ran onto that reference to Featherstonehaugh myself or whether it was called to my attention by Dr. Quaiffe.

We first came into connection with Featherstonehaugh by the study of Schoolcraft where a letter had been written

3292 by him to Schoolcraft.

We looked up Featherstonehaugh to find out who he was and what authority he had to speak and to verify the statements made, as best we could.

3293 We had all those books on the table before us, which is the reason I could not answer a while ago as to

whether I did go back and look up Keating a second time after I looked this report up.

I found this report in one library and we used Keating in another. I do not think Featherstonehaugh was careless and inaccurate in his statement of what Keating had said on the subject, in the light of the passage in Keating itself. He says, 'This error was no doubt occasioned by the writers' looking at it from the right bank and not stopping to examine it." That would involve a knowledge of that particular ground as to which was correct.

3294 One calls attention to the fact that the bluff was isolated and the other says it was close to the bank. It is not my impression that Featherstonehaugh made a careless quotation of what Keating said.

Keating says it is a rocky island corresponding with the adjoining bluff and separated from the left bank by a narrow wall.

Featherstonehaugh says, "This curious peak has been represented as 'a rocky island separated from the left bank of the river' and to be 'very near the east bank of the river.'" From reading Featherstonehaugh I did not get an entirely different opinion from what Keating said than from the reading of the passage in Keating.

3295 It is not my opinion that the particular part in the quotation marks unfairly represents what Keating himself says on the subject. I think that would be accurate.

3296 Since Featherstonehaugh points out how the error likely occurred, it seems a fair interpretation of what is pointed out there.

Keating was giving an official report of the land and it was Featherstonehaugh's duty to give a correct description of it; he found an error in one report and pointed it out.

3297 Q. Featherstonehaugh does not state a reading of Keating would show the line of description which Keating had made, does he?

Objection; incompetent, irrelevant and immaterial; no historical witness or critic is competent to say what is stated; the statement is in the record.

3298 A. I think I have answered that. Cass pointed out as the reason that the paper which Featherstonehaugh was editing was not securing the support it deserved as that the public did not appreciate the value of the careful geological

work that was being done. That is my recollection. That indicated to me that Cass thought he was a careful writer.

Q. And that those engaged in that profession generally thought so?

Objection; there is no evidence from the witness as to any others engaged in the work generally.

Q. Did you find out whether there was anybody else engaged in geological work?

Objection; incompetent, irrelevant and immaterial.

3299 A. No, I simply cited that reference indicating what it meant to my mind as to the standing of Featherstonehaugh. The disagreement between Featherstonehaugh and Keating is one line of evidence which would lead me to discredit the statements of Keating, generally, and shows that his contemporaries thought that he was a careless

3300 observer. That Featherstonehaugh at the time he was making this investigation had with him the record of Keating and the record of Carver, and of men who preceded him, and was making a comparison, not only with each other, but a comparison with the facts as he found them, and was drawing his conclusions in the light of that test; hence, whenever Keating would not square with the facts as he found them, it would be one line of evidence.

I went through Keating and made an analysis. There-

3301 after I looked up Featherstonehaugh. I do not know whether I went back to Featherstonehaugh or not. Do not think I made a second examination of Keating.

3302 If, upon examination, it was found that one authority was incorrect, and the other was correct, in their actual description, the conclusion which the historian would draw, would be that it would be subject to further study.

3303 Q. Have you concluded that the statement of Keating with respect to the matter referred to on Transcript

2861 should or should not be rejected?

Objection; incompetent, irrelevant and immaterial.

A. I would simply conclude that this is one of the lines of evidence that would have to be taken into consideration in drawing a conclusion in regard to Keating's standing. Concerning the accuracy of the statement, I do not know. I have not drawn any conclusion and I would draw none until I did know. I would accept Keating with the greatest of caution because of the lines of evidence I have pointed out.

3305 I have stated lines of evidence that point to Keating's carelessness and I adhere to my conclusion that he was a careless observer. I see nothing that has been pointed out to me in this examination that would lead me to change my general conclusion stated in my direct testimony.

3306 I would adhere to the statement that Keating's "generalities based evidently upon Hopson's statement must be rejected." I have been preparing those conclusions which I read into the record the last three or four weeks.

3307 I was working on them while I was giving my testimony. They were prepared in my study at home. I wrote them out in longhand and handed them to a stenographer.

I talked over those various notes with Mr. Scott before they were put in final form. All those general conclusions which I read into the record at the close of my testi-

3308 mony, I had prepared before.

As to Featherstonehaugh's criticism of Keating I

3309 drew my conclusion independently. I talked over the line of evidence and my final conclusions with Mr. Scott. I do not recall that any changes were made after the interview. I do not know that I can point out any particular passage in Keating showing that he referred to the same tribe of Indians referred to by Featherstonehaugh.

3310 I did not make any further study of this than I did of those others. Simply, I cited it as one line of evidence which Featherstonehaugh regarded as indicative of Keating's carelessness. If I were making a critical analysis of Featherstonehaugh would check him up with all the authorities I could find: among them Keating. If I found that a number disagreed with him and they disagreed with Keating, I would weigh all of those in drawing my conclusions.

I have not made an examination of ethnological authorities to determine whether Keating or Featherstonehaugh was correct as to the name of this Indian tribe.

3311 If I found Featherstonehaugh was incorrect and careless, all of those things would have to be taken into consideration in weighing Keating.

In connection with my criticism of Keating, I did not read the article in Bulletin No. 30 of the Smithsonian Institution, Bureau of Ethnology, Published in Washington in 1907, pages 376, 377. I know of the Bulletin and what general subjects

it deals with; Indians and various researches. I am not
3312 familiar with the article. I do not know what standing it would have as an authority among historians. It is a government publication and the presumption would be in favor of accepting this as reliable authority. The title reads, "Smithsonian Institution. Bureau of American Ethnology. Bulletin 30. Handbook of American Indians north of Mexico. Edited by Frederick Webb Hodge. In two parts. Part 1. Washington. Government Printing Office. 1907." I do not think I ever heard of the author nor do I know his standing among ethnologists.

3313 Referring to pages 376 and 377, the heading, "Dakota," I read:

"Dakota ('allies'). The largest division of the Siouan family, known commonly as Sioux, according to Hewitt, a French Canadian abbreviation of the Chippewa Nadowe-is-iw, a diminutive of nadowe, 'an adder,' hence 'an enemy.' Nadoweisiw-eg is the diminutive plural. The diminutive singular and plural were applied by the Chippewa to the Dakota, and to the Huron to distinguish them from the Iroquois proper, the true 'adders' or 'enemies.' According to Chippewa tradition, the name was first applied to a body of Indians living on an island somewhere E. of Detroit (W. Jones).

Dakota, Nakota, Lakota are the names used by themselves, in the Santee, Yankton, and Teton dialects, respectively. J. O. Dorsey, in his classification of the Siouan languages, divides the Dakota group into 4 dialects: Santee, Yankton, Assiniboin, and Teton."

3314 In connection with this I could not draw a conclusion one way or another as to whether Keating's designation of this tribe of Indians was wrong and Featherstonehaugh's was right. I simply know from recollection that Featherstonehaugh said he made careful inquiry in regard to that point and he found they were called by that name, while the other name was incorrect.

3315 Keating called them by the other name.

The standing among historical writers of the publications of the Smithsonian Institute is generally high.

Not quite knowing the standing of this book, I do not know whether a historian who is endeavoring to get correct information as to ethnological facts would turn to it or not. It may be correct or incorrect. A book which deals with such wide subject-matter is open to second hand material.

The passage in Featherstonehaugh referring to this Indian name reads:

3316 "I made particular inquiries amongst the chiefs, through my interpreter, and they all concurred in the assertion that their proper name was Nacotah. This word means united or allied people. Dacotah means, 'My relations.'"

My attention is called to the fact that the article in Bulletin 30 interprets the word as "ally.' In Featherstonehaugh's footnote "this" I presume refers to Nacotah, and he says it means a united or allied people. Dacotah means "my relations," and I would judge from this parenthesis in the Bulletin to which you refer that the meaning of Dakota would be "allies."

3317 I am not sure just what distinction there would be between "my relations" and the related or allied people, in the significance of the name.

Q. I direct your attention further to the review of the different names given to the Indian tribes found on page 379 of this Bulletin No. 30, and I ask you whether or not it is not true that the only writer who has used the word Nacotah as referring to an Indian tribe, is Featherstonehaugh?

Objection; no foundation for the question. Witness does not claim nor is he shown to have examined every writer outside of Featherstonehaugh or Keating as to the meaning of Nacotah; nor has he claimed to be an authority on the derivation of Indian names and what various writers say concerning them.

A. I find that under Featherstonehaugh's name, the name Nacotah appears.

3318 I find nothing else except Featherstonehaugh's name under "Nacotah."

I do not know what this list of references is, whether it refers to particular names, particular classes, tribes, or what.

Under Dacorta I find Lewis and Clark's Expedition.

Under Dacota, I find Long's Expedition, and under Dacotah, I find Howe, Historical Collection. Under Dahcotah I find Tanner's Narrative and Gallatin, Translation of American Antiquities and Parker's Minnesota Hand Book.

As to whether a conflict between Keating and Featherstonehaugh existed, would depend on whether they were talking about the same tribe of Indians. I would say that would

have to be taken into consideration. I am not sure whether Dacotah refers only to several divisions or not.

3319 Featherstonehaugh and Keating would have to refer to the same tribe of Indians by different names before there would be any conflict.

Q. In view of the investigation which you have made upon this subject of the alleged conflict between Featherstonehaugh and Keating with respect to the name of this tribe of Indians, and in view of what you have said in reference to the objection to Keating for carelessness, is it your opinion as a historical critic and expert, that your work in this criticism possesses that degree of carefulness which will justify our accepting your conclusion with reference to the carelessness of Keating?

Objection; question assumes claims on the part of the witness that witness has not made; he simply read into the record the statement of Featherstonehaugh, making no claim to have made any investigations upon that

3320 point himself, or to have drawn any conclusions as to which was correct; incompetent, irrelevant and immaterial.

COUNSEL FOR COMPLAINANT. I will add to that, in view of your failure to make an investigation, with respect to which was correct upon that subject, what have you to say?

Question reread as changed.

A. I simply cited Featherstonehaugh on this point as evidence that he thought Keating was careless.

3321 Every man's work must be tested in determining whether a writer is careless. An exhaustive investigation would of necessity take in an investigation of other authorities who had differed with him and an investigation of the actual facts themselves. My conclusion in so far as I drew one upon this point was based upon the investigation which I had made as I brought out in my direct testimony.

3322 Q. Do you think that with respect to this investigation of Keating's and as preparatory to the statement that Keating should be rejected for carelessness, you have made that thorough investigation into the facts themselves which justifies a historical critic in saying that an author of standing is careless?

A. I have pointed out four or five lines of evidence as indicating—

Q. No, no.

Mr. SCOTT. Go on with your answer, Mr. Lee.

A. (Continuing) —as indicating that—

Mr. WILKERSON. If the witness wishes to make a speech and not to answer the question, let him go on.

Mr. SCOTT. The witness is going on.

Mr. WILKERSON. And so long as he persists in going on and not answering the questions, we will sit here if it takes all summer, until he does answer the question. Go ahead.

A. I would like that question read and would like to know how far I had gotten along with my answer, if it was not responsive.

Q. The question is a very easy one and it is susceptible of a direct and terse answer. Read the question.

(Question read.)

Mr. WILKERSON. I submit that that question is capable of being answered yes or no.

3323 A. I have made such a study as would lead me to take his statements with caution and to try and square them with other facts.

Q. Do you think that you have made such an investigation into these statements from Keating as to warrant a careful historical critic in saying that a writer of standing is careless?

A. Possibly I could answer that beter if I had my direct evidence before me or my notes.

Q. Are you unable to answer that question I put you last, yes or no?

A. I have made sufficient study to throw his statements open to question in my own mind and his carelessness would be one of the things that would lead me to make that conclusion.

Q. Do you still adhere to what you said in your conclusion with reference to the rejection of Keating for carelessness?

A. The rejection of Keating for carelessness?

Q. Yes.

A. Carelessness would be one of the reasons for rejecting Keating.

Q. Do you still say that Keating should be rejected?

A. In regard to the point at issue?

Q. Yes.

A. I would place very little weight upon him.

Q. Do you still say that Keating is to be rejected?

A. In the light of the fact that it is contrary to the facts

as I found them in other cases, I would place very little
3324 weight upon him.

Q. Do you still say that what you have read from Featherstonehaugh tends to show that Keating was careless?

A. That is one of the lines of evidence pointing out his carelessness.

Q. Do you still say that Keating is to be rejected?

Mr. SCOTT. I object, the witness has already answered the question.

Mr. WILKERSON. That is a direct and simple question.

A. I think I have answered that question.

Q. Do you still say that Keating is to be rejected?

A. All statements are to be taken and weighed and I would weigh his statements as I would weigh the statements of any other man.

Q. Pardon me, do I make my question clear?

A. Yes, sir, I think so.

Q. Do you say that Keating is to be rejected?

A. But that is a question that I believe cannot be answered by yes or no.

Q. Why did you say then that Keating is to be rejected?

A. I stated that Keating—that you are to place very little weight upon Keating's statements.

Q. Did you not say that Keating was to be rejected?

Mr. SCOTT. I object; the record itself will show what he has said.

3325 Mr. WILKERSON. Refer to the record and see whether you did not say that Keating was to be rejected. Did you not say at page 2991 of the record, and if you wish to do so you may read the record "Keating reports that the Desplaines could be navigated, but since he never was over the route and was a careless observer, his generalities based evidently upon Hopson's statements, must be rejected." Do you still adhere to that?

A. Well, I should think that that possibility should have been worded, that Keating was to be taken as evidence and weighed as you must weigh all evidence and base your conclusion upon that evidence. Now what Keating says must be squared with facts.

Q. Have you weighed Keating with the facts on these points concerning which you have pointed out the disputes between him and Featherstonehaugh?

A. I have weighed him and I rejected him upon this point at issue.

Q. Rejected him on the point in issue because you found he was contradicted by Schoolcraft and Featherstonehaugh?

A. That was one of the lines of evidence only.

Q. You still adhere to that?

A. Yes, sir.

As to whether I read into the record a statement from Featherstonehaugh's letter to the effect that Feather-
3326 stonehaugh found Carver to be more accurate than Keating, I will say the record will show I am not sure that I have just the exact wording.

At transcript 2864 (Abst., p. 1165) Featherstonehaugh's letter on page 25 of Schoolcraft's book (reading): "I found Keating's account of the Mississippi river and especially of the St. Peter's most surprisingly erroneous, and old Jonathan Carver's book which he is constantly denouncing, very accurate," was put in to show that Featherstonehaugh found Keating inaccurate and Carver accurate.

3327 It connected another man who had traveled over that route and made the description and pointed out and showed that not only were Keating and Featherstonehaugh at variance but also Keating and Carver. There has been some question as to Carver's writings, in the early period he was accepted. His book was very popular and passed through many editions. Recent historians have questioned it and subjected it to analysis with the result that portions were
3328 rejected and portions accepted.

Q. As the result of your examination into this subject and the checking against data which you say the careful historian should do, it is your opinion that Featherstonehaugh's statement as to the comparative accuracy of Carver and Keating is a justifiable statement?

Objection. Featherstonehaugh's statement was limited to the accuracy of descriptions of specific things that he saw and of which Keating wrote and of which Carver wrote; no man who has not seen those things is competent to say which description is correct.

3329 A. On the whole and for the points that are involved, Carver should be accepted.

3330 To answer that question involves a knowledge of that particular territory as to whether Carver or Keating was correct.

This is a line of evidence that Featherstonehaugh thought

they were correct; to sufficiently verify and check that up
3331 I would have to know whether Carver was a careful writer and narrator of things which he saw on the route over which he traveled, and I would have to cite authorities as to his accuracy to find out whether he actually went over that road or not.

Q. Have you now as a historical critic any opinion as to whether or not the statement upon which you have your finger there in the record is a justifiable statement?

A. Well, Mr. Wilkerson, I am trying to evade—

Q. Have you any opinion on that?

Mr. Scott. I object to the witness being interrupted when as far as he got in his answer is simply "Mr. Wilkerson."

Mr. Wilkerson. That is farther than he has got thus far.

Mr. Scott. He is not likely to get much farther when he is interrupted on the first word of his answer.

A. Wouldn't that statement as to whether that was a justifiable statement or not involve a knowledge of that territory?

Mr. Wilkerson. I didn't ask you that; I asked you now whether you had any opinion as a historical expert as to whether or not that statement of Featherstonehaugh's was a justifiable statement?

A. I could only base an answer upon this statement
3332 that Carver—

Q. Can you answer yes or no?

A. I don't think I can.

Q. Have you or have you not an opinion?

Mr. Scott. He has answered; he says he don't think he can. There is your yes or no answer.

Mr. Wilkerson. Are you willing to adopt the answer suggested by counsel for the defendant?

Mr. Scott. I object to that because I merely quoted the answer the witness gave himself. I used his very words.

Mr. Wilkerson. I think it is important that the witness should himself repeat the repetition.

Mr. Scott. He did use the very words I used. I quoted him only.

Mr. Wilkerson. Why not leave it to him?

Mr. Scott. Because there isn't any occasion to heckle and badger when a witness has answered, to keep pounding away on a thing like that. It would not be permitted if a judge were present.

Mr. Wilkerson. This witness has not been badgered. On the contrary he has been subjected to a very mild cross-exam-

ination compared with what he would receive at the hands of a judge who was trying to ascertain the facts, and that the record will show.

3333 Mr. Scott. And that we will leave to the judge when the case is read to him.

Mr. Wilkerson. Have you now any opinion as to whether that stafement is a justifiable statement?

Mr. Scott. I object, that the witness has already answered the question.

Mr. Wilkerson. Will you please answer it again?

A. I would refer to my record, by previous answer, Mr. Wilkerson.

Q. I am perfectly willing to let it stand.

Mr. Scott. I am.

The Witness. May I state further, Mr. Wilkerson—

Mr. Wilkerson. There is no question pending. Is this an addition now to the answer which you have already made through your counsel?

Mr. Scott. That, Mr. Wilkerson, you have no business to say and when you read the record you will know that you have no business to say it.

Mr. Wilkerson. I am perfectly willing to stand on the record with respect to that answer.

Mr. Scott. I am very much disappointed in you that you are.

Mr. Wilkerson. Perhaps the disappointments are mutual. Were you about to add something to your answer?

3334 The Witness In connection with my statement on transcript 2991 (Abst., p. 1205) "Keating reports that the Desplaines could be navigated but since he never was over the route and was a careless observer his generalities based evidently upon Hopson's statements must be rejected," I went through Keating's works to find out what information he had, if any, and what knowledge he had of the particular subject concerning which he was speaking. I think I went over both volumes of the expedition to St. Peters river to find what pertained to this subject.

3335 Counsel for Complainant. Q. Did yop find the passage on page 215 of Volume II as follows:

"The navigable communication above mentioned is continued from the head of the Illinois by two different routes, viz., to Chicago fifty miles through the River Desplaines and a small water course connecting the stream just mentioned with Chicago river; and to the

St. Joseph of the Lake about one hundred and twenty miles through the Kankakee, and a small tributary of the St. Joseph interlocking with that river in a tract of marshy country. Through both of these routes loaded boats have passed from the lakes to the Illinois during the vernal floods. The route first mentioned is very direct, and is now frequently traversed with boats of burden; the other is extremely tortuous along the windings of the Kankakee, and is seldom practicable."

A. Merely from memory, I think I read that passage. I would have to see the reference. At any rate it should be taken into consideration "boats of burden" might be boats of large burden or small burden.

3337 Q. In reference to your statement that as to Keating's statement being based evidently upon what he was told by Hopson, I direct your attention to the sentence on page 167:

"Having been informed that this route was frequently traveled by traders and that it had been used by one of the officers in the garrison, who returned with provisions from St. Louis a few days before our arrival at the fort, we determined to ascend the Chicago river in order to observe this interesting division of waters."

A. In my criticism of Keating, I made no investigation for the purpose of ascertaining whether or not there were traders in Chicago at the time Keating was in Chicago other than his own excerpt gives.

My investigation put me in possession of no information as to whether or not there were traders at Chicago when Keating was there.

3338 There was very little trade that could have been in Chicago at that particular time, 1823. It would be about that period that Hubbard was doing his trading. Hubbard gives his own experience of the fur trade and describes brigades as coming down here in the years from 1816 to 1818 or 1824, something like that.

3339 Hubbard indicates that there were traders who at some time during that period were in Chicago.

Hopson's statement was the first thing that came into his mind evidently, for he cited Hopson. I do not know that his citation to Hubbard's experience or to the experience of traders so far as we can draw it from Hubbard would throw light upon or verify Keating's statement.

3340 It is not my impression that the first thing that came into his mind in this connection was the information he had received in regard to traders having gone this way. I would have to read that citation over.

3341 (Witness reads citation, from Hubbard p. 167, aloud.) This would be one of the things he would have in mind. "Having been informed that this route was frequently traveled by traders" appears before his reference to Lieutenant Hopson.

So far as I can find in the passages introduced, he does not say that he obtained the information with reference to the use of the route by traders from Lieutenant Hopson.

3342 He simply cites that as a specific instance that came to his mind. He says, "He accompanied us to the Desplaines" and tells that he had traveled it with ease in a boat loaded with lead and flour.

The passage, "Although at the time we visited it there was scarcely enough water to permit our pirogue to pass, we could not doubt that in the spring of the year the route must be a very eligible one. Lieutenant Hopson, who accompanied us to the Desplaines, told us that he had traveled it with ease, in a boat loaded with lead and flour," points to the season of the year he was referring to in connection with Hopson's instance. I do not presume that the Hopson trip is the same one to which he refers on the preceding page as the trip which was made by an army officer a few days before. He speaks of Hopson making an entire portage. On page 167 he re-

3343 fers to an officer who had made a trip a few days before, which was a few days before the seventh of June when he left the fort.

The reference refers to three experiences and sources of information. I cannot cite any direct evidence that Keating ever talked with Schoolcraft.

3344 I made no particular investigation as to the time that Kinzie left Chicago. I know he was there, was an early trader and that during the War of 1812 he was not at Chicago, and that later he returned. Whether he was there in 1823 at that particular time I do not recall.

Q. As a result of your examination with reference to the use of this route, what is your understanding as to whether or not the early part of June was a period of high water or not?

Objection; incompetent, irrelevant and immaterial.

A. I am not sure whether June generally was. I thought the

spring freshet used to come a little earlier, yet I am not sure. We find high water at later times than June and evidently there must have been high water this year, when he was there. I say evidently. It is not positive proof. That is indicated by the fact that he made the portage himself.

3345 I don't remember that he says anything about the quantity of water in the river. If I am not mistaken he speaks about the quantity of water in the portage channel.

He says, "Although at the time we visited it there was scarcely enough water to permit our pirogues to pass," he was simply making a portage so there must have been water enough for him to make the passage over the portage with a boat. I did not state as positive proof that Keating's statement was based on Hopson's statement. That is one of the instances that he cites in particular.

His conclusion was that the Desplaines could be used clear up and across the portage, if that is what he means; I am not sure whether that is what he refers to on page 167 when he says "this route."

3346 He evidently had received information of this route; that this route, whatever he means by that, was frequently travelled by traders and that it had been used by one of the officers of the garrison. Whether or not he means that they made a short portage or a long portage is not clear from that excerpt.

3347 As I remember, I did not make a statement that I had considered the passage on page 215, Volume II, Keating, in my previous study of him. As the passage was read to me I thought I remembered having read it.

3348 Chapter 5 is headed: "General description of the country traversed by the expedition designed as a topographical report to the War Department, by S. H. Long, Major, United States Topographical Engineer." I am not sure whether there is anything in the preface to throw light on the authoriship of that chapter not. It gives the sources of information from which the book was written.

I read from the preface that which seems to throw light upon that subject:

3349 "The principal object which the compiler had in view, was to unite the documents confided to him, so as to present a faithful description of the country over which the party travelled, and of the few adventures which in-

terrupted the monotony of a journey through a wilderness.

It may be well to state, that the historical part of the narrative, together with the topographical and much of the descriptive matter, has been drawn from Major Long's notes. Mr. Calhoun's manuscripts, besides contributing to the same departments, and yielding the astronomical observations, have been very valuable in furnishing the greater part of the references to older writers. The comparisons between the observations made by our party and the assertions of former travellers, are almost entirely due to that gentleman. From Mr. Say's notes, all that relates to the zoology and botany of the country traversed has been obtained, as well as much of the matter relating to the Indians. This last department has been completed from the compiler's own notes, which have likewise furnished the geological observations. Besides which, the journals kept by each of the gentlemen have frequently completed the observations made by some other member of the party. It has been deemed unnecessary to state, in all cases, by whom the observations were made or recorded. This
3350 has, however, been done whenever the facts appeared sufficiently interesting to require that the names of the observers should be annexed to them.

As Major Long's report to the War Department presents a concise summary of the general features of the country visited by the party, it has been thought advisable to introduce it as a conclusion to the narrative. Having been ordered to the Ohio to make an experiment to improve its navigation, according to the provisions of a late act of Congress, Major Long was absent from Philadelphia during the preparation of that part of the manuscript which follows the three first chapters of the first volume. This may account for some of the inaccuracies which the work will be found to contain; it is hoped that by his presence they would have been avoided."

3351 This is a report by S. H. Long, I judge by the reading of the chapter and was published by Keating as a part of this book. I think Major Long was in this general territory.

On the question of whether Long was in Chicago when Keating was there, the passage on page 146, Vol. I, Keating throws light on the subject. (Reading):

"After a while we reached a high and dry prairie, partly covered with young aspen bushes, rising from the height of from eight to ten feet, and so thick that it was almost impossible to keep the whole of the party in sight; this reminded Major Long of some of the difficulties he had experienced in travelling through the cane brakes of Arkansaw."

3352 I presume that was just a short time before they reached Chicago. Long was evidently with them in the spring journey that just preceded, reaching Chicago. I understand he was in command of the expedition. I read from Chapter 5, pages 201 to 202:

"The region, whose description is intended in the present essay, as embracing the route of the expedition, is limited on the N. W. by the intersection of the 51st
3353 degree of N. latitude with the 97th of W. longitude, and, on the S. E. by that of the 40th degree of latitude with the 74th degree of longitude west of Greenwich. Its figure is rhomboidal, about thirteen hundred miles long, from E. S. E. to W. N. W. and has an average width of between four and five hundred miles. Its boundaries may be traced on the accompanying map, being coincident with the route of the Expedition.

The researches of the Expedition were more immediately limited to the region above specified, but our attention has been nevertheless directed to the attainment of new information relative to other parts of the country, whenever a favorable opportunity presented. The substance of the whole is briefly embodied in the following remarks, with the view of giving a geographical outline as complete and satisfactory as circumstances will permit.

In order to render the description as plain and perspicuous as practicable, we shall arrange our remarks under separate heads, corresponding to particular divisions of the route of the Expedition, and conclude with a few observations of a more general nature and application. The following division of the subject may therefore be regarded as applicable, viz:

1st. Of the country between Philadelphia and the Ohio River.

2nd. Of the country between the Ohio River and
3354 Lake Michigan.

3rd. Of the country and navigable communications between Lake Michigan and the Mississippi.

4th. Of St. Peter's River and the adjacent country. Also of the Coteau des Prairies.

5th. Of the Red River and the adjacent country.

6th. Of the country between Lakes Winnepeck and Superior.

7th. Remarks on the variety of subjects connected with the topography of the country."

The third subdivision is "Of the country and navigable communications between Lake Michigan and the Mississippi river." (Reading):

"No part of the region traversed by the Expedition can be considered more interesting than that now under consideration. The surface, which is generally prairie, is agreeably diversified by gentle swells and valleys, and checkered with skirts of woodland fringing its numerous water-courses. The soil in many places is exuberant in a high degree, and is nowhere infested with rocks or stones. The bottom especially exhibit proofs of the greatest fecundity, in the rankness of their vegetable
3355 products; to these valuable traits must be added the abundance of lead ore, which prevails in many places; all of which conspires to render this country quite as valuable as any other tract of equal extent within the basin of the Mississippi. In this brief recital of the natural advantages and resources of the country, it should not be forgotten, that the facilities for water communications between the lake and the Mississippi are numerous; there being no less than three different routes through which loaded canoes have passed from one to the other in time of inundation, without the intervention of portages.

The foregoing remarks are intended as applicable more particularly to the tract bounded, north by the Wisconsin and Fox Rivers, south by the Illinois, east by Lake Michigan, and west by the Mississippi River, than which few countries of equal extent can boast of a finer aspect. The rivers included within the limits just assigned, are the Chicago, Milwacke, Manitowacke, and several other of less note, tributary to Lake Michigan, the Des Plaines, De Page, Fox, Mequin, &c. tributary to the Illinois, the Rock and Makabea or Small Fox

River, and several others of smaller size that mingle their waters with the Mississippi. Rock River has many tributaries, among which are the Kishwake, Pektannon, Little Pektannon, and Wassemon Rivers, all respectable streams, never before recognized in the geog-
3356 raphy of the country. The valleys of the water-courses generally, and particularly those just mentioned, are bounded by parallel ranges of hills, of moderate height and gentle declivity."

The WITNESS (continuing reading page 209):

"The country embracing the southern extremity of Lake Michigan, and extending inland many miles from the lake, presents no hills except the elevated sand-drifts that bound that extremity of the lake. On the contrary, an extensive flat embracing woodlands and meadows alternating with each other, spreads from the St. Joseph to the Des Plaines, and from the lake to the Kankakee. Its soil is apparently good, but the chilling northerly winds, which blow from the lake, charged with vapour, seem to carry with them blast and mildew, and render its prolific energies abortive. At Chicago, which is situate within this tract, attempts have been made to cultivate maize, wheat, oats and other products, but they have often proved fruitless."

3357 The WITNESS (continuing reading pages 212 to 213):

"The Valley of the Upper Mississippi, below the Falls of St. Anthony, varies from three to ten or twelve miles in width, except at the De Moyen and Rock Island rapids, where its breadth is so contracted that it affords sufficient room only for the bed of the river, which at the former place is about 1200 yards wide, and at the later from 800 to 1000. It is uniformly bounded by high bluffs, which are generally abrupt, and often precipitous. Within the valley, especially in the vicinity of Lake Pepin, insulated knobs and hills of considerable magnitude, based upon horizontal strata of rocks, and towering to various heights, from 100 to 500 feet, are frequently to be met with. These must be regarded as the remains of the high country, through which the river in process of time has scooped out its broad and deep valley. They serve not only to beautify the landscape, but to remind the traveler of the great changes wrought upon the surface of the globe by the agency of water.

The upper Mississippi is also remarkable for the great width of its bed, and the multieplicity of islands it embosoms. It spreads in many places to the width of five or six miles, and seems to lose itself among countless islands through which it flows in numberless small channels. Between the mouth of the Missouri and Lake Pepin, no less than six hundred and forty islands of con-
3358 siderable size have been enumeratéd. Lake Pepin is a very beautiful enlargement of the river, twenty-two miles long and from one to three broad, destitute of islands, and affording a great depth of water. Above the lake the river becomes narrower, and the islands smaller and less numerous.

The valley country is made up of prairies and woodlands alternating with each other; the former of which are usually elevated above the reach of floods, and are richly carpeted with herbage and flowers, while the latter sustain a dense and heavy growth of trees, intermixed with vines and shrubbery and are, for the most part, subject to inundation in flood time.

During the spring floods, which usually prevail during the month of April, May and June, this part of the Mississippi is navigable to the mouth of the St. Peter for boats of great burden. In a low stage of water the rapids above mentioned oppose serious obstructions to the navigation, which is also rendered still more precarious by the numerous shoals and bars with which the bed of the river is infested. The rapidity of the current decreases as we ascend, being about three miles per hour at the mouth of the Illinois, and one mile and a half near that of the St. Peter. At the DeMoyen rap-
3359 ids, the river is hurried down a descent of about thirty feet in the distance of eleven miles, and at the rapids of Rock Island, which are about fifteen miles long, the aggregate descent is about forty-five feet."

Motion to strike out. Not cross-examination or pertinent to the direct.

COUNSEL FOR COMPLAINANT. The Government preserves the right of not having it further copied in the record should the court sustain the motion to strike, but to offer it in its own behalf in case it should elect so to do.

The WITNESS (continuing): I now read the paragraph at the bottom of page 214 and top of page 215. (Reading):

"The Illinois river is to be ranked among the most

important of the western rivers, inasmuch as it affords greater facilities as a water communication between the lakes and the Mississippi than any other stream. Its length from its mouth to its source, at the junction of the Kankakee and Des Plaines, is three hundred miles. For a distance of fifty miles on the upper part of the river shoals abound, which are serious impediments to its navigation in a low stage of water. The most for-
3360 midable obstructions of this nature are the rapids situated at the confluence of Vermilion river, which are utterly impassable for boats except in times of flood. Below this, the navigation is exceedingly easy, for boats of moderate draft and burden, to the mouth of the river, a distance of two hundred and fifty miles. The current throughout the distance last mentioned is exceedingly gentle, often quite imperceptible; indeed, this part of the river may with much propriety be denominated an extended pool of stagnant water. Its valley is broad and bounded by parallel ranges of bluffs, presenting, in most places along the margin of the river, low bottoms covered with a dense growth of timber trees, surmounting thickets of weeds, vines, and bushes almost impenetrable. The woodlands thus situated are subject to inundations, during the prevalance of a moderate freshet, but in their rear, at a considerable distance from the river, are extensive prairies of a rolling aspect and richly adorned with herbage. The ascent to the highlands across the bluffs, is generally gradual, but in some instances abrupt."

The next paragraph is one relating to the Desplaines which I have head into the record.

I now read from the paragraph following that, page 215. (Reading):

3361 "The Wisconsin, from its magnitude and importance, deserves a high rank among the tributaries of the Mississippi. When swollen by a freshet it affords an easy navigation for boats of considerable burden through a distance of more than one hundred and eighty miles. Its current is rapid, and, like the Mississippi, it embosoms innumerable islands. In a low stage of water its navigation is obstructed by numerous shoals and sand-banks. At the distance from its mouth above mentioned, there is a portage of one mile and a half, across a flat level, which is occasionally subject to inundation,

to a branch of Fox River of Green Bay, thus affording another navigable communication between the lakes and the Mississippi through which boats have been known to pass. The valley of the Wisconsan is somewhat narrower than those of most other rivers of this region, but in other respects it is very similar to them. The high country here assumes a more hilly and broken aspect, and the soil becomes more sandy and meager.

While on the subject of water communications it is proper to remark, that a third route, viz: by way of the Rock and Milwacke Rivers, has been found practicable for canoes."

3362 My attention being directed to the statements at pages 209 and 210 in the paragraph beginning "The country embracing the southern extremity of Lake Michigan," etc., and ending, "at Chicago which is situated within this tract attempts have been made to cultivate maize, wheat, oats, and other products, but they have often proved fruitless." Upon reading this I thought of Keating's statement, and that they were probably taken from the same set of notes. According to my knowledge of the fact it would be inaccurate. I have not gone into it in detail as to whether they did actually attempt to cultivate in the early days or with what success.

3363 Have made no study of the cultivation of maize in northern Illinois in the early part of the nineteenth century. From my general knowledge there must have been a very slight attempt made to cultivate maize of any kind, because of the paucity of the population, and there were no indications of commerce going out of this territory; there is no indication of people being here to any extent, I mean.

Have made no investigation of the relation that may exist between maize and corn as it is now cultivated, or the meaning that might have been given to the word "maize" there.

3364 I would not be prepared to say that the statement in chapter 5, page 210 just read, is incorrect or not.

I think my statement on Transcript 2292 (Abst., p. 962) "Hutchins is also considered and he in turn based his statement on Kennedy" should be changed to read, that he probably based his statements on Kennedy. There is not positive proof that he did so base them.

3365 In my conclusion of Hutchins, I said:

"That I find no definite evidence that he was ever in Chicago or that he has been over the route in question.

On the other hand, when he describes the Illinois cou
try, he speaks of the Illinois river and cites as autho
ity, Kennedy, concerning whom we know that when
attempted to make a journey up the Illinois river,
failed because of insufficient water. Hutchins, then,
inference, it seems reasonable, is citing as authority
man who is not competent to speak on the subject
question."

I did not aim to convey the idea that there was positi
proof he did. As far as any knowledge I have of the De
plaines, the inference is that it is based upon Kennedy a
his experience.

3366 There is nothing in the edition which I have in
hand which refers to Kennedy as the authority for t
statement I have mentioned. My notes say that in the prefa
of Hutchins he recognizes Kennedy or bases his work up
Kennedy. I have not the volume here which I used.

I am not familiar with Hicks' edition of Thomas Hutchi
A Topographical Description, at reprint from the edition
1778, edited by Frederick Charles Hicks, published at Clev
land by Burrows Brothers Company in 1904. I have
3367 information as to the standing of Hicks as a historic
writer or critic. Do not know how many editions
this description were issued by Hutchins. I presume the
have been more than one. Unless I could make a compa
son, I could not tell from looking at the preface to the Hic
Edition whether or not it is an accurate reproduction of t
preface to the edition I used.

3368 I have before me A Topographical Description
Virginia by Hutchins which states that it is "a pl
of the rapids of the Ohio, a plan of the several villages
the Illinois country, a table of the distances between Fo
Pitt and the mouth of the Ohio; and an appendix contai
ing Mr. Patrick Kennedy's Journal up the Illinois rive
and a correct list of the different nations and tribes of I
dians with the number of fighting men, etc."

I would not say that that extract from the title page is
that can be found for the statement that Hutchins has referr
to Kennedy as authority for his statement concerning the Il
nois river and passages to Lake Michigan. My notes indica
that I found something else. I presume I have.

3369 I did not say I have positive proof that Hutchins bas
his conclusions on Kennedy.

Thomas Hutchins had a residence here in Illinois and was a trader for a period. Just what he was I am not sure. I know he was here and lived in Illinois and left notes and citations upon what then existed in Illinois.

3370 I should judge he came to Illinois about 1770 or 1771. Do not know when he first came here. I now recall that Hutchins was an officer in the British army who, in 1766, in company with Captain Gordon, Chief Engineer of the Western Department of North America, and George Grogan, Deputy Indian Agent, went on an expedition down the Ohio.

I might have recalled this from his map and the topographical study that he left. You have refreshed my recollection.

From memory I think I know that in 1776 Hutchins was at the present site of Louisville, Kentucky, and that in

3371 that year, they ascended the Mississippi to Fort Chartres, Illinois, the present cite of St. Louis. I am not sure that I recall that from November, 1768, to October, 1770, Hutchins' base of operations was Fort Chartres. I think I have read the statement, "From November, 1768, to October, 1770, Hutchins' base of operations was at Fort Chartres in the Illinois country" which appears in the biographical sketch of Hutchins in the book to which I have been referred. I am not sure that I have.

3372 I knew that in 1771 Hutchins presented to the American Philosophical Society at Philadelphia an account of the Illinois country. There is a work entitled "Remarks on the country of Illinois" in the Pennsylvania Library. I have not examined it.

I presume that Hutchins at Fort Chartres would have an opportunity to come in contact with what trade there was in this western country that centered at St. Louis.

In my investigation as to the sources of Hutchins' information I recall the statement you have read as follows:

> "I have compared my own observations and surveys, respecting the lakes, with those made by Captain Brehm, of the 60th regiment of foot, (who was for many years employed as an engineer in North America), and I

3373 find that they correspond with more exactness than surveys usually do, which are made by different persons at different times; and I am happy in this opportunity of expressing my obligations to this gentleman, for the cheerfulness with which he furnished me with his surveys and remarks."

Other than as given there, I do not know who Captain Brehm was, and have made no independent investigation to determine the character of his observations.

Kennedy's trip was in 1773. He says, "July 23, 1773, we set out from Kaskaskia in search of a copper mine." He speaks on August 10th, of the conditions along the Illinois river. The last date I find of his journey is August 16th.

3374 It was in July and August that he was on the Illinois river. On August 10th, he says:

"We crossed the highland and at ten o'clock we came to the Fox river which was thirty miles beyond the place where we left our boat."

I think Schoolcraft made the trip to which I referred in my direct testimony in August.

3375 Q. In your investigation of this account of Kennedy, did you obtain any information as to how much water the boat used by Kennedy drew?

Objection. Witness testified to this on direct; already in evidence how much water Schoolcraft's boat drew.

A. I find nothing in regard to that from this present search other than it says (page 507), "To row our boat". It does not say what kind of a boat.

I understand that is not the paging of the original publication.

On the date of August 9th, I find this statement:

"After passing this river, which is 255 miles from the Mississippi, we found the water very shallow and it was with difficulty we got forward, though we employed seven oars, and our boat drew only three feet of water."

3376 Under the same date, I find this statement:

"The water being very low we could get no further with our boat, and therefore we proceeded by land to the forks."

3377 Under date August 10th, I find this statement:

"From whence we went to an island where several French traders were encamped."

That indicates there were several French traders encamped on that island.

Under date of August 12, I notice this statement:

"Here it is that the French settlers cut their mill stones."

Under date of August 10th, he says:

"About six o'clock we arrived after walking about 12

miles at an old encampment fifteen miles from the fork."

3378 I presume he refers to the fork of the Fox river.

Under date of August 9th, he says:

"At the distance of a mile further we arrived at the little rocks which are sixty miles from the forks and 270 miles from the Mississippi."

From this first glance, I judge he means the forks of the Vermilion there.

My attention being called to said statement:

"The wind continuing fair, about ten o'clock we passed the Vermilion river, 267 miles from the Mississippi. It is 30 yards wide, but so rocky as not to be navigable. At the distance of a mile further, we arrived at the little rocks, which are 60 miles from the forks, and 270 miles from the Mississippi."

It would not be the forks of the Vermilion. I presume it would refer to the Desplaines and Kankakee.

3379 I believe the boat was left sixty miles from the forks on August 12th. I am not sure what he means when he says, "Here it is that the French settlers cut their mill stones," because he says just before that "At nine o'clock we arrived at our boat." Evidently he had come from the island back to his boat. "From the island where we found the French settlers and from whence we embarked in a canoe to go to our boat, there is a considerable descent and rapid all the way." Evidently, he had been up the river, returned to where he left his boat and then embarked in a canoe.

3380 He speaks of French settlers. I do not know whether he means they had cut the mill stones before or were then cutting. Either interpretation might be put on that expression.

I have used the term "early settlers" in my testimony. In speaking of the early settlers of northern Illinois I was referring to the present English settlement, and that there were no settlers previous to their coming in, as was pointed out by that line of evidence.

3381 Under date of August 12th, my attention is called to this statement:

"We embarked early, and proceeded three miles down the Illinois river. On the northwestern side of this river is a coal mine, that extends for half a mile along the middle of bank of the river, which is high. On the

eastern side, about half a mile from it, and about th
same distance below the coal mine, are two salt ponds
100 yards in circumference and several feet in depth
the water is stagnant, and of a yellowish color; but th
French and natives make good salt from it."

Which would indicate that the French settlers were ther
at that time.

My attention is called to a statement under date of Au
gust 15th:

"Here I met with Mr. Janiste, a French gentleman
and prevailed on him to accompany me in an attempt u
this river to discover the copper mine."

Other than as given here, I have no information as to wh
Janiste was.

3382 Q. Do you know whether or not he was a trader?

Objection. Witness has stated his only informatio
appears in the excerpt.

A. No.

I recall no other reference to Janiste at the present time

Q. Did you ever make any investigation for the purpose o
determining whether or not Kennedy ever met Hutchins o
had the opportunity of meeting Hutchins after he, Kennedy
made his journey in 1773?

Objection. Immaterial.

A. I do not recall any passage now that connects the tw
after that period.

I made no investigation to determine who Kenned
was.

3383 I read this narrative of Kennedy's and I have com
across his name before, but I can make no positive stat
ment about him. I have taken his narrative of his journe
up the Illinois river. To obtain information as to who h
was and in what he was engaged during this period, I woul
go to the Illinois Historical Collection. I think that is whe
I came in connection with his name. Then I would trace u
what information I found there through further sources.
do not know what authorities I would resort to, what pa
ticular volumes.

3384 I think I remember having found his name in thi
connection. Do not know that I knew that Hutchins wa
transferred to the Southern Department in 1772, and unt
1777 was engaged in engineering work in West Florida.

My attention is called to the statement on page 19, Hick
Edition of Hutchins, which reads:

"Early in 1772, at General Haldimand's request, Hutchins was transferred to the Southern Department. Until the year 1777, he was prominently identified with all the important engineering work in West Florida."

Q. Do you recall whether or not you came in contact with that fact in your investigation?

Objection; immaterial.

A. I am not sure whether I have or not.

Q. In the course of this critical study in the relation between Hutchins and Kennedy, did you ascertain it to be a fact that during the period of 1772 to 1777 Kennedy was at Kaskaskia?

3385 Objection. Question assumes that the witness testified and made a critical study of relations between Kennedy and Hutchins, whereas no such thing appears in his evidence.

3386 A. My conclusion, if you call it a conclusion, was that Hutchins probably based his work on Kennedy.

Q. Yes, and I am investigating to determine whether you were justified or not in using the word "probably."

Objection; irrelevant, incompetent and immaterial.

A. The conclusion which I read was that Hutchins then by inference, it seems reasonable, is citing as authority a man who was not competent to speak on the subject in controversy. The statement that Kennedy was not competent I base on his narrative of his particular journey up the river.

3387 Unless a historical critic would limit his statement in some such way as I have, based upon the study which he has made, I do not think he would be justified in stating that Kennedy was not competent to speak upon the subject from a mere examination of Kennedy's narrative without investigating the other sources of information that Kennedy might have.

To make an exhaustive study, you would have to go into the question of where Kennedy was from 1772 to 1777 and what he was doing, as far as possible. Maybe he made other journeys up there. In my study I have not found any record of his making a journey up there.

3388 My previous testimony shows how exhaustive a study I made; what conclusions I drew and how I have limited them.

Q. I understand that you have no knowledge at all of the

subject of where Kennedy was during the five years commencing in 1772, whether or not he was in Kaskaskia at that time?

Objection; subject fully covered by questions and answers heretofore given.

3389 A. My previous answers stand as to that.

If in the course of my investigation into this subject I had ascertained that Hutchins was in Louisville in 1766 through the southern Illinois country including Kaskaskia, Cohokia, and at Fort Chartres during the period of 1766 to 1770, and that he had written on the Illinois country as early as 1771; that Kennedy during the period of 1772 to 1777 was continuously in Kaskaskia and that both Hutchins and Kennedy had the opportunity resulting from the general experience of coming in contact with those who lived and

3390 traded in that part of the country, I might change my conclusion if I found those additional facts. I would weigh all those facts in the consideration of the question. I have limited my conclusions to the study I have made. The facts that I had at hand. If I found new facts, I would weigh those.

3391 Some of those facts I have taken in consideration in this connection.

I knew that Hutchins had been in Illinois, at Louisville and along the Ohio river. I think I recall that information. I knew that he must have had some general knowledge

3392 of the situation in Illinois; but in considering this question of the nevigability of the Desplaines river, it seems to me that this ought to be taken into consideration, that whether or not the Desplaines was navigable was merely a matter of the length of the portage. Now, if he came in touch with the people in lower Illinois, he might have come in contact with traders who came by the general route of Chicago, but he cites as authority a man who attempted to go up this route and was unable to use the Desplaines.

Mr. WILKERSON. You still persist in your statement do you that Hutchins cites as an authority—

The WITNESS. No, I have not made that statement.

Q. You just made it.

A. Well, I should modify that, which is, however, not a modification of my original statement. I said it was by inference it seemed reasonable, based upon Kennedy, that is, it

seems, a reasonable inference that he bases his statement upon Kennedy.

3393 At the time I drew my original conclusions about Hutchins, as I stated them, I do not know that I knew all of the facts you point out in regard to Kennedy.

I do not quite know what you have in mind when you say, "assuming these facts to be true." You say assuming he had an opportunity to get in touch with traders. I would want to know from study whether he had met traders who were actually using this route or not, and what his information from those traders was. If I got information of that kind I would consider it and it might lead me to change my conclusions. I would consider all the facts.

3394 My original conclusion appearing in the record at 2992 (Abst., 1205), had been copied on a typewriter from a first draft, written out in my handwriting and was read into the record from this prepared typewritten statement.

3395 I have not seen Hutchins' map. (Witness shown copy of Hutchins' map, which accompanies Hicks' Edition of Thomas Hutchins. A Topographical Description.)

I believe Kennedy got up the river as far as thirty miles below the Fox.

3396 I see the word "Islands" here, and I remember Kennedy referred to an island. Also, I see on the map the river Plein, Mount Joliet, Lake Du Page, Theakiki river, the Chicago Indian Village, and the little rivers which I judge is the Chicago river.

I said that there was an inference that Hutchins based his remarks upon the Illinois river upon Kennedy.

Q. Can there be any reasonable inference on the part of a historical critic that Hutchins based his portion of his map above the islands on the information which he obtained from Kennedy when Kennedy only got to the island?

3397 Objection. No evidence that the witness drew any inference that Hutchins based his opinion on which he made this map upon anything from Kennedy. The matter referred to as to which he did draw his inference has no relation to what appears on this map.

A. I do not know what his source of information for this map would be.

3398 So far as I have made a study of him I should not think there should be any inference of that kind at all.

I did not intend that it should be understood from my testimony that the only information which Hutchins had with reference to the Desplaines river and these portages was probably that which he had obtained from Kennedy. I limited my conclusions solely to my examination, and so far as they extended they indicated that Hutchins by infer-
3399 ence based a statement in regard to the navigability of the Desplaines or upper Illinois on Kennedy and may have had other sources of information. He had a general knowledge of Illinois.

It says on the map it was published according to Act of Parliament, November 1, 1778, by Thomas Hutchins, the same year the Topographical Description was published.

Hutchins must have had a knowledge of Illinois which he got from different sources. In regard to the map and the possible inference that since the map and topographical description were published in the same year, Hutchins did have some information with reference to the Desplaines river and these portages, I would have to go into the study of
3400 that map and find out whether Hutchins got his information from authentic sources, whether he actually made those surveys for the map himself, and whether it was reliable. Whether he got it from authentic sources would have nothing to do with whether he got it from Kennedy. I have said by inference Hutchins is probably based on Kennedy.

3401 There is an inference in view of what appears on Hutchins' map accompanying this topographical report that Kennedy is one of Hutchins' sources of information about that part of the river above the island. In the mind of the historical critic I do not think there is any inference that Kennedy was one of the sources of Hutchins' information as to the names and description of the rivers above the island, especially in regard to the name that would apply.

3402 At Transcript 2990 (Abst., 1205) I placed Kennedy in the second class referred to there, namely, those who passed over the route but did not use the Desplaines and stated that, "I considered him in this connection also since he had tried to come to the head waters of the Illinois and was unable to do so." I do not know that Kennedy ever passed over the Desplaines route.

3403 My attention is directed to Volume 2, Long's Expedition by Keating, page 218 (reading):

"The most formidable obstructions of this nature are the rapids situated at the confluence of the Vermillion river which are utterly impassable for boats except in times of flood."

(Witness handed book of Imlay, containing Kennedy's account). I do not understand that any inference could be drawn with reference to what was above the rapids from the fact that Kennedy was unable to get over them. "The water being very low we could get no further with our boat and therefore we proceeded by land to the ford." He does not say it was mere passage over the rapids at mouth of Vermillion. From that point on he says "the water being very low we could get no further with our boats."

3404 Schoolcraft was obliged to leave the river just above the Vermillion. He says (reading):

"The rapids commenced half a mile above, which makes it evident that the Illinois is greatly diminished in size above the junction of the Vermillion. The water at once becomes shallow, and the rock which is a sandstone, presents itself first in broken masses, and soon after flooring the bed of the river. When our canoe would no longer float without rubbing against the rocks, we got out and made a short portage, the empty canoe being still guided along by men walking in the stream on each side."

In the Kennedy account under date August 12, I find the statement:

"From the island where we found the French traders
3405 and from whence we embarked in a canoe to go to Fort Pitt, there is a considerable descent and rapid all the way."

It seems that each of these extracts point out that from that point up the water was shallow and it was not navigable.

3406 I would have to make an examination of Kennedy again to find out just how far he did go up the river. He proceeded with boats to within sixty miles of the forks. As to whether I had the right to put Kennedy in the class of travellers who passed over the route but did not use the Desplaines, I considered my classification of him and tried to make it clear that I placed him in that class because he tried to use the water and was unable to do so. I do not know that

he tried to use the Desplaines and brought that qualifi-
3407 cation in the classification.

Hutchins would be regarded as a general primary source. There is a difference in primary sources.

In giving weight to the statement of a man who had an opportunity for general knowledge and who had made the statement that there was a portage of four miles between the Chicago and Desplaines, and that that was a trade route, and who had had an opportunity extending over a period of from three to four years to come in contact with persons who used the route, I would take those latter facts into consideration,
but I would not give him more weight than I would the
3408 words of a man who was actually making the route and telling of his experiences.

3409 The greater the opportunity to gain knowledge, the greater weight I would place upon it. As to whether I would place more weight upon the statement of a man getting information for a map than upon one who was not getting information for that purpose would depend wholly upon the relative position and training of the man.

3410 The fact that a man was getting information to publish a map would have to be taken into consideration. If he held an official position, gathered information from most reliable sources, I would place more weight on his work than that of a man without opportunity of investigation who was not making a study of the topography of the country.

I read from Imlay's America, page 45:

"Charlevoix seems to have gone rapidly from Detroit by water the greatest part of the way to New Orleans; Hutchins to have done nearly the same from
3411 Pittsburg, down the Ohio to the Mississippi, and up that river to the Illinois; so up that, and from thence to Detroit. He has given a tolerably good account of the Illinois country."

That would seem to indicate that Hutchins had gone up the Illinois river, I would make no generalization with regard to the map. Do not remember having seen that passage before. It might be a fair inference for a historical critic to draw from that that what Hutchins said and put on his map was the result of his own observation; he would probably take it into consideration in drawing his map. When it
says that a traveler goes up the river it indicates he
3412 went up the river, clearly. I believe Hutchins' book was published in 1778. I believe that edition of Imlay was

published in 1797. My attention is directed to my statement on transcript page 299? (Abst., 1206), that Imlay based his statements on Hutchins.

3413 From the introduction to the third edition of Imlay, it appears that Imlay's letter was written ten or fifteen years after Hutchins wrote, or in 1785; Hutchins having written in 1778. Imlay was a general writer of Kentucky history; was an army captain; his standing generally good

3414 among historical writers. In letter page 45, it is said (reading):

"His observations I have been told are considerably accurate, and as I have not had the advantage of traveling this route, I recommend you to read his book, which was originally published in England, and no doubt is still to be had."

Imlay lived in Kentucky a number of years; I think,

3415 Louisville. He would have an opportunity to know concerning the general statements which Hutchins might make of Illinois, by contact with those who would have knowledge on the subject. I assume that he would not know as much of the conditions along the Illinois or Mississippi as he would along the Ohio; that would not be far from Kaskaskia.

3416 I have before me the passage from Perrault offered on the part of the Government. Transcript, page 185 (Abst., 79) wherein it is stated that in 1783 there were Canadians traders in Cahokia. It speaks of a number of gentlemen from Montreal who had stores there, and mentions Perrault having come down.

3417 This would indicate that there were traders on the Illinois that went from the north. Imlay refers to Hutchins on page 45, and says: "I must now beg you will travel with Hutchins from hence to Detroit." "He will conduct you by the head branches of this river, and after a short passage you will embark again on Lake Michigan, etc." From that I judge it to be a reasonable conclusion that he is

3418 turning the writer over to Hutchins. The reason being that he has been told that Hutchins is generally accurate and since Imlay has not had the advantage of traveling the route he recommends reading Hutchins' book originally published in England which can still be had. It is probably a fair inference that he referred the writer to Hutchins because people had told him Hutchins' account was accurate. He had the

means of coming in contact with people who would know about the Hutchins account in a general way.

3419 My attention is directed to the passage from Volume 1, Keating, Long's Expedition, page 166, transcript page 2893 (Abst., 1173), which refers to the volume of business in Chicago, and "as a place of business it affords no inducement to the settler." I simply cited that as one of the lines of evidence upon which I drew my conclusion that there was very little commerce in Chicago.

3420 I would not have accepted it if I could not find corroboration any more than I would have accepted his statements about the Desplaines river without corroboration. His statements would have to be verified, especially in view of the criticism I have made. I do not change my general conclusion with regard to Keating. At transcript, page 2992, I class Darby among the men who probably were never at Chicago and state, "Darby came only to Detroit and he is considered in this connection. * * * It is to be noted that the three, Woodruff, Darby and the editorial should be given very little weight in deciding the question at issue."

3421 I made no exhaustive study of Darby. He was a member of the New York Historical Society. I find no evidence that he was in Chicago; that he only came to Detroit I took from the book which says, "A Tour from the City 3422 of New York to Detroit." He may have been in Louisiana and in going have gone down the Ohio.

Made no inquiry to find out his relations with Benton.

3423 He may have been in St. Louis and known Major Long. I believe Darby was a surveyor. I don't know how he came in touch with the editorial from the St. Louis Enquirer. It may have been handed to him by Benton or he may have been a subscriber. Some man had been down the Ohio and who was in St. Louis and Indiana might be given considerable weight and some might not.

3424 I made no exhaustive study to find if Darby had gone farther west than to Detroit. I made no study except from this book. If later investigation proved that my investigation as far as it went had not revealed all the facts that he was in Chicago, that he did pass over this route, my statement that he should be given little weight would—

3425 The statement in the preface that "In West Virginia, in West Pennsylvania, in Kentucky, Ohio, Indiana, Illinois, Tennessee, Missouri, Mississippi, Louisiana, and Ala-

bama, in west New York, Michigan, and in Canada, I have, for thirty-five years, been a witness to a change of a wilderness to a cultivated garden" would indicate that he had traveled widely.

There is nothing in the statement of Hutchins, Long, or the second volume of Keating which says that boats of burden frequently pass from Lake Michigan by way of the Desplaines river, to change my conclusion in regard to the statement, in this editorial about these "hundreds, nay, thousands of boats."

3426 It ought to be taken into consideration that for a certain portion of the year at least the river would be frozen up and impossible for boats to pass down there. The reasonable interpretation of the editorial would make his statements therein apply to the time of which he was writing.

3427 I have found no evidence to cause me to put the interpretation on that passage that hundreds of boats had been seen at St. Louis or had used the Desplaines river. I considered the words, "Have been seen." This "long contested problem" about which Darby was writing is that of natural water communication between the St. Lawrence and Mississippi. This editorial states, that it decides a long contested question. Without weighing that editorial with other editorials and information that he might have gotten in hand.

3428 It says: "The following interesting notice decides it." If there were other sources of information, he would probably have given weight to them instead of citing the editorial as the one thing that decided the problem. In squaring that editorial with the facts (See Transcript, 2905, Abst., 1178), I tested it by the facts or with those conditions which I thought to be facts, the commerce in northern Illinois on the lakes, and at Chicago and the population in Chicago and northern Illinois.

3429 I tested it where I thought a safer test could be made. By the word "safe" I had in mind that by getting to the conditions in these places I could find out whether or not the commerce did pass over this route or there was a probability that it did so pass. Had I gone to St. Louis and noted commercial conditions there I must have differentiated between the commerce that came on the various routes that centered there.

To consider the possible fact that there was not civilized

population in northern Illinois and that there might have been further to the south people who were carrying on trade and commerce through this district where no trade origi-
3430 nated itself. I would have to take into consideration along with that the trade that was on the lakes and the trade that came through Chicago.

Have cited authorities pointing out the extent of commerce at Chicago and on lakes about that period.

When I squared this editorial I took into consideration Perrault's own experience in drawing my conclusions, and, I think, what he said about the gentlemen from Montreal and Cahokia and in considering the interests of the gentlemen from Montreal in southern Illinois.

3431 I realized there were several routes by which people could come from the north to southern Illinois and St. Louis and placed the test as to whether they passed through Chicago as the commerce through Chicago. I think the authorities I have cited will point out whether the commerce came to Chicago or not, and if they did pass through
3432 Chicago, and whether they were unloaded.

As to whether my authorities deal with the extent of trade in Chicago, I would refer to my direct testimony to find out. Whereupon, counsel for the Government asked the following question:

Q. Haven't you in mind pretty clearly your process of reasoning on that? You may refer to your authorities if you want to, but I had assumed that you had your process of reasoning pretty clearly in mind I want to find out just what it is. We have now these known facts with which we are trying to square this statement, and a part of the known facts are as you say that throughout southern Illinois and up in the neighborhood of St. Louis, there were these towns from which trade and commerce was being carried on; and in this very period we find the gentlemen who live in Canada, Montreal, do business in southern Illinois, we found this route by way of the Illinois and Desplaines being referred to as the direct route, and we find these brigades of boats coming down from Mackinaw each season; now is it your idea that is any test at all of whether commerce passed through this route, that there was no commerce which really originated in Chicago because there were no people there?

To which the witness replied:

My statements in the direct will point out that I simply considered that as one of the lines of evidence.

3433 If there were no population, it would indicate there could be no commerce arising from the demands of the people there.

3434 We have evidence that this route was used in that period. Hubbard says he used it; Perrault passed through Chicago in 1783; and Heward in 1790.

I considered all those matters in my direct; that there were no people in Chicago and no commerce originating there would not disprove the fact that the route was used.

3435 The French and the men Kennedy referred to would be people that settled in Kaskaskia and Cahokia, but they were traders, and might be classed as settlers Both the traders and the settlers who came with their horses and oxen would use the early river routes. The early French traders were compelled to use every waterway that they could and to carry his canoe if he were a settler or on a mission.

In the case of the settlers they would settle along the rivers. I have not made an exhaustive study of the early French settlers of the southern part of the state.

3436 Indians and negroes at a later period came in with the people from Kentucky and south of the Ohio. The French traders came, some direct from France, but primarily from Canada, I believe.

3437 There were French settlers who married these Indians, and by accepting the life made their trade more successful. There was a lower class and an aristocrat class. The French carried on some agricultural work; sent products down to St. Louis and New Orleans, especially during time of American Revolution. I presume, they maintained their financial connections with Montreal.

In squaring the statement of this editorial with known facts, I have not overlooked conditions in southern Illinois during the period immediately preceding the time it was written, in 1819, and the trade and commerce carried on by the people who lived in southern Illinois and St. Louis.

3438 I interpret the editorial as applying primarily to the period of which he was writing. If you interpret it as speaking of conditions running back as early as 1673, my impression was that further investigation would show there was little commerce over that route at that time.

3439 On Transcript, page 2710, (Abst., 1108) I stated that in my investigation of the histories, I found no evidence of the use of the Desplaines by early settlers either in bring-

ing themselves or families or for transportation or produce and supplies.

3440 I think I could still adhere to that. The only use of the river for transportation was by these three, Heward, Perrault and Hubbard, for the purpose of transportation, portage and supplies. They would not be included as early settlers. Think it would be a strained use of the word

3441 to class Perrault as a settler. He was a trader and made one trip.

The early inhabitants of Cahokia and Kaskaskia who had business relations with the gentlemen who lived in Montreal might not be so classed, but I have not found a record of their using the Desplaines. The three men evidently used this route in connection with trade carried on with people living in lower Illinois. In the case of two of these men I have pointed out there is no record that they used the Desplaines. In the case of Hubbard it is clear he attempted to use it. He gives

3442 the detail of one trip down the Desplaines and speaks in a general way of conditions upon other trips.

Deschamps is the man who as I recall it is the man who had charge of the Illinois Brigade before Hubbard. It is of record in connection with Deschamps' works that Hubbard gives us the narrative.

3443 It is not my point that if the early settler merely had his goods or merchandise shipped back and forth over the river in connection with his business, that he did not use the river. My question was whether I had found "any evidence of the use of the Desplaines by early settlers either in bringing in themselves or their families or for the purpose of transportation or portages or supplies." If you speak of traders to the south as settlers and transportation which Hubbard carried down over the river as being transportation of those early settlers, there would be then one line of evidence which I have found. I am not sure I had that in mind when I answered the question. I had in mind the settlers that would come and settle along the river and use it as they did down along the Illinois or Ohio and Mississippi rivers.

3444 If a man collected furs at Kaskaskia and Cahokia or St. Louis and shipped them by this route over the Desplaines to Lake Michigan and from thence to Canada it might be interpreted that he had used the river for the purpose of transporting goods, produce or supplies; that is not

the usual interpretation that would be placed on settlers using a river for commercial purposes.

If the Desplaines was navigable for a boat carrying one thing it would be navigable for another, and I have taken the experience of Hubbard on the river into consideration.

3445 On transcript, page 2991 (Abst., 1205), I state that Tousey and Graham and Phillips report positively against the navigability of the Desplaines.

3446 I refer to the passage, "During half of the year the Desplaines does not contain water enough to float a boat, so could not become useful at a national highway." That was taken from Graham and Phillips' report.

I am taking his statement of the condition as reporting against navigability. He says: "Could not become useful as a national highway." I use the word, "navigability."

3447 He does not state that the Desplaines might be navigable during half the year. The mere inference might be drawn as to that.

In connection with the foregoing statement, I considered the remarks at the close of the report, that the route by the Chicago, "presents at one season of the year uninterrupted water communication for boats of six or eight tons burden between the Mississippi and Michigan Lake; at another season a portage of two miles; at another a portage of seven miles from the bend of the Plein to the arm of the lake; at another a portage of fifty miles." Regarded that as stating conditions as probably existed at the time of freshet.

During the period of the year when boats of six or eight tons burden could be taken uninterruptedly to the Mis-

3448 sissippi, I presume it and the prairie around it at that time would be navigable.

When the water was not quite so high it would probably be used with the short portage; at the season when there was a portage of seven miles that portion of the river below the portage would be navigable for boats of six or eight tons burden. In the sense that successful commerce could be carried on regularly, I should think that Graham and Phillips reported positively against navigability.

As to my use of the word navigable in my general conclusion I think I took into consideration the fact as to whether the river was used or not and noted the kind of vessel, canoe or pirogue that was used.

3449 I tried to make my conclusions and statements of fact as they existed, how many times in the whole pe-

riod the river was used, with what means of transportation, whether canoe, pirogue or batteaux.

Where I say on Transcript 2964 (Abst., 1197), referring to Hubbard's trips "that they went down the Desplaines is to be admitted; that they navigated it is not," had in mind Hubbard's detailed account of the down trip wherein they put the boats on rollers. I would not consider that navigation.

3450 His experience in going down the river was that he resumed the voyage to the Isle a la Cache where he unloaded to pass the shoal. Hubbard points out that progress was slow from that point; that they carried the goods the most of the way from the Illinois on their backs, and that he was compelled to place boats on poles.

3451 If that be navigation, though I do not consider it, then Hubbard navigated the Desplaines. I presume Hubbard did navigate the Desplaines in places, but as it took him three weeks to go down the Desplaines he evidently did not navigate very much.

3452 Q. All your testimony and the whole effect that your testimony has in this case, depends upon what you mean by "navigation" and "navigability" is not that right?

Objection; incompetent, irrelevant and immaterial. If that conclusion is to be drawn it is to be drawn from the record not by the witness.

A. Am not sure what the whole effect would be. Have pointed out a number of facts; analyzed a number of excerpts and placed them in the record.

The river might be navigable and still be obstructed by shoals or shallow places at low stage of the water.

3454 In my statement on Transcript 2991, (Abst., 1205) wherein I say "Long probably reported in the spring of the year concluding that the river be navigable for small boats and flat boats must be improved," I had in mind the third paragraph of the report, which begins as follows "The river through the above mentioned distance has four or five short rapids or ripples that make their appearance only in times of low water; in every other part it has the appearance of being a chain of stagnant pools and small lakes affording sufficient depth of water for boats of moderate draught."

3455 I also considered the next paragraph, "The distance from the river Desplaines to Chicago river by this water route is about nine miles, through the greater part of which

there is more or less water so that the portage is seldom more than three miles in the dryest season, but in the wet season boats pass and repass with facility between the two rivers." Having in mind alone the sentence, "About four or five short ripples make their appearance only in times of low water" the inference would be that those ripples would not be so noticeable in times other than low water. From the context as a whole I do not know that the inference could be made that excepting times of low water, the river even at those places could be used by the kind of boats referred to by Long in his report.

3456 Where Long speaks of rendering the Desplaines and Illinois navigable for small boats and flats requiring but a small draught of water, I presume he had in mind this improvement he indicates, making the river navigable for such boats at all seasons of the year, probably. He says to render the Desplaines and Illinois navigable for small boats and flats requiring but a small draught of water requires this improvement.

3457 Long's report was dated March 4, 1817. From the date, I judge that Long probably reported in the spring; that is based on the date of the report, March 4, 1817. All that I had in mind when I said that Long reported in
3458 the spring was this date. The statement as to the ripples shows that Long was evidently reporting conditions of the river at different stages of water.

I based my conclusion on the entire report of the Canal Commissioners of 1825, including the sentence, "From the mouth of the Little Vermilion above referred to, neither the Illinois nor the Desplaines is navigable in low stages
3459 of water, as they are frequently interrupted by rapids," which is to be taken into consideration in connection with the succeeding statement that they turn their attention from that to the building of another navigable water communication between the Illinois and Lake Michigan. They refer there to the head of navigable waters of the Illinois river, which indicates that they placed the head of navigation on the Illinois river.

3460 I presume they had in mind the building of a canal that could be used for commercial purposes at all times of the year and at all stages of water. They had in mind that the head of navigation was on the Illinois, and that to construct navigable communication between that point and Lake Michigan it was necessary to make improvement.

I presume when they had in mind the head of navigation they meant the navigation at all seasons, and all stages of water. As to the head of navigation at other stages than low water, my first answer covers that.

3461 I am not sure just what they refer to as the "Head of navigation." Two or three points on the Illinois are known as the head of navigation; one, Peoria, another Peru, and sometimes vessels would come farther, as far as they could at different times of the year. Steamboats had been introduced on western waters in 1825 and on the Ohio; there had been some down to St. Louis by that time and one or two on the lower Illinois.

Q. In those newspaper advertisements which you read into the record was not the head of navigation, which is there specifically mentioned the head of steamboat navigation?

Objection; great many read into the record; one answer cannot meet all.

3462 A. It does not state what it is that is meant by the head of navigation.

It is simply referred to as such. I think in some of those advertisements it says, head of steamboat navigation. I am not sure. The Canal Commissionuers probably had in mind that the head of steamboat navigation was on the Illinois river, though it does not specifically state so. My conclusion that the Canal Commission of 1825 reports that the river was not navigable, does not necessarily involve an understanding of the meaning of the word "navigable," in the report, and what I understand by navigable. I stated that they reported against navigability and I cited their authority as evidence.

3463 My interpretation of their remark about the head of navigation on the Illinois has been interpreted in my direct.

Whereupon the witness read as directed by counsel for complainant from the Commissioner's Report of 1825:

"A portion of the commissioners, therefore, in the fall of 1823, accompanied by Col. Justus Post, whom they had engaged as their engineer, explored and examined the country from the rapids of the Illinois river with the streams emptying into the same, to Lake Michigan; and the country bordering on the Chicago river and Kalimick, which streams also empty into Lake Michigan.

3464 The commissioners returned by water in canoes, examining the bed of the rivers, particularly the depth of

water, and the height of the river banks. They also ascended the Chicago river, or arm of Lake Michigan, having its confluence with that lake on the west side, about 35 miles below the head of it, to the head of the river, 5 miles. From this point there is a portage of 7 miles to the river Desplaines. They then descended the Desplaines, 50 or 60 miles, to its mouth; where uniting with the Kan-ka-kee, a considerable river from the southeast, its source being in the country with those of the Wabash and Saint Joseph, the river Illinois is formed; thence down this river to its confluence with the Mississippi, 350 miles; thence down the latter, 18 miles, to Alton, the place from whence they had departed.

It is a source of much satisfaction for the Commissioners to be enabled to state, that the result of this examination eventuated in the conviction, that from the mouth of the Illinois river, to the Little Vermilion, a handsome stream 12 or 15 feet wide, discharging its waters into the Illinois river on the west side, and about 4 miles below the rapids of the Illinois, there is not the least obstruction to the nevigation, excepting in two or three places below Spoon river, in extremely low stages of water, where small sandbars show themselves, but which, however, can be easily removed."

3465 They evidently were in canoes and in the fall of the year, returned in canoes.

My interpretation of the second paragraph is that as a result of the trip they make a distinction; they specifically speak of the conditions below the head of the Illinois river.

Further they speak of the conviction they come to, they point out that from the mouth of the Illinois to the Little Vermilion there is not the least obstruction to navigation, except in two or three places, and then they speak of the conditions above the river and following that description point out that the navigable waters are on the Illinois. Those are the facts I have taken in consideration in my conclusion.

3466 It says, "From the mouth of the Little Vermilion above referred to neither the Illinois nor the Desplaines is navigable in low stages of water" and then they point out that no serious obstacles present themselves in effecting a canal navigation by another water.

It says, "They are not navigable in low stages of water, as

they are frequently interrupted by rapids." I am not sure whether or not in the interpretation of Long's report, I had in mind the description of the Desplaines as given in Volume two of Keating's report, which I have read into the record heretofore.

Keating's knowledge of the stream at that time was drawn from it at the time of high water.

3467 Do not believe I had in mind the comparison which is drawn in Chapter 5, Volume 2 of Keating between the Desplaines and Chicago and the Fox-Wisconsin.

3468 When I formulated my conclusion I do not recall whether or not I had in mind the report of the Select Committee of the House of Representatives appearing on transcript, pages 305, 306 and 307 (Abst., 140-141), in connection with my interpretation of Long's report, Graham & Phillips' report, and that of the Canal Commissioners of 1825.

Said report of the Select Committee of Congress was thereupon read to the witness as follows:

"Such, indeed, is the concurrence of scientific observation and actual experience in relation to that fact, that, in order to establish it, the report was not necessary. The experience to which the Committee refers, is that of many years, and which is matter of historical notoriety. It is that of repeated passages having been made, by uninterrupted navigation from the river into the lake. With respect to the scientific observations that have been made, the Committee refer to the report of Major Long to the Secretary of War, in 1817, and which was printed by order of Congress."

3469 The WITNESS (continuing): I simply made a study of the report. I do not recall the particular language of the Committee, which you have just read to me.

Don't think I read that part of the report. I notice that the report has not been made.

3470 "Although the report of the State Commissioners and Engineers had not been made to the General Assembly at the time of adopting the memorial that has been referred to the Committee." I should take this into consideration in regard to the three reports of Long, Graham & Phillips and the Canal Commissioners of 1825, as I would all lines of evidence. Here they quote from Long's report, which I could get by reading the report itself. The fact that two committees of Congress in their formal report referred to a fact as a historical notoriety should be considered. The question

you refer to here of historical notoriety is that of repeated passages having been made by uninterrupted navigation from the river to the lake; which should indicate that the fact that you are calling my attention to there would be facts that happened evidently in high water.

3471 If they passed over the portage in their canoes it seems a fair interpretation to put it positively high water.

At transcript 2987 (Abst., 1204), I say Cass used this route early in July, 1827, with a light canoe; he had twelve men at the paddles and a steersman.

I have read the passages in Smith, Life and Times of Louis Cass, to which you have directed my attention, which have been read as follows, page 185:

"At that time, the communication between Green Bay and Prairie du Chien, upon the Mississippi river, where these events were passing, was by water up the Fox river about two hundred miles to the portage, thence across to the Wisconsin and down that stream to the
3472 Mississippi, which it enters three or four miles below Prairie du Chien. General Cass embarked in a brich canoe with fifteen paddles to visit the scene of difficulty, and to take such measures for the protection of the people and for restraining the Indians as might be found necessary."

(Page 188): "From St. Louis, General Cass ascended the Illinois in his canoe and passed into Lake Michigan, by the water communication, without leaving it."

(Page 188): "At the head of the Desplaines, a branch of the Illinois which approaches near Chicago, is a shallow lake, appropriately named Mud Lake. The party entered it towards evening, and it soon became so dark that they could not discern the bank. The lake was covered with the broad leaves of a kind of lily, favorable haunts of disgusting looking water snakes. A birch canoe cannot touch the shore without danger of having a hole broken through its slight material. It is brought near the land, and there retained while the passengers disembark, and this is effected by their being carried ashore upon the backs of the voyageurs. And
3473 in the same manner is the freight disposed of. The canoe is then taken from the water and carried by the men upon the land. Finding they could not get to shore

safely, the party spent the night upon that slimy sheet of water. Eighteen men in a small canoe, on a hot summer night, with the poles stuck into the mud across the canoe to steady it, accompanied with the most intense rain and with the most intense thunder and lightning,—such are the reminiscences which belong to that memorable night. And he who was not there, or has never been in such a place, if such another place there is, has little conception of what a formidable enemy a mosquito can be. During that long night,—long in suffering, though short in the calendar, for it was in the month of July,—their venomous attacks were beyond the power of description. As soon as the dawn of day enabled the party to discern the surrounding objects, the anchor poles were taken from the mud, and the voyage was resumed. A small branch of the Chicago creek takes its rise close to this Mud lake, and the whole region being flat and marshy, when the waters are high this creek flows back into the lake, and thus a communication was formed by which boats passed from the Desplaines, which runs through the lake, to the Chicago creek, and of course to Lake Michigan. This channel of communication, though almost shut up by the rank water vegetation, was found in the morning, and the travelers en-
3474 tered it, and as the descent to Lake Michigan is rapid, and the distance but a few miles, that space was soon passed over, and the canoe rested upon the broad bosom of that great lake. The magnificent city which occupies the junction of the Chicago creek and the lake, and of miles around, had then no existence. The white man was not there with the power and the desire to change everything around him. There were no troops, and but few families, and these were connected with the Indian trade. They were of course exposed at all times to the sudden hostility of the Indians. As the canoe approached their cabins at the mouth of the creek, the voyageurs commenced their songs, and these were heard by the traders and at first mistaken for the shouts of the Indians. Knowing that the times were dangerous, they were at first in great fear, being entirely destitute of means of resistance, but they were soon and happily reassured by the sight of our flag and by the arrival of the canoe, and it was with demonstrations of the liveliest joy that they received General Cass upon the bank."

This account says there were eighteen men. Hubbard's narrative of Cass, says twelve men and one steersman; don't know that I adopted Hubbard rather than this. Simply gave analysis of Cass' account as related by Hubbard.

3475 I pointed out the facts in that connection; did not draw any conclusion or make any adoption as to the number of men in one or in the other. I rejected the statement in Hubbard as to the date of Cass' trip, and accepted the date as here given when corroborated. Took this as one line of evidence to point out it was earlier than September 28, which I believe Hubbard gives it. I would take it as one line of evidence indicating there were more than twelve men in the boat, in connection with the facts, analyze each book and point out how methodic they were.

Have not reached any positive conclusion as to the number of men in the boat.

3476 The date is pretty well fixed in my mind as July, 1827.

I find three or four other statements to corroborate that, which appear in my direct testimony. I cited Young and McLaughlin and one or two other citations from the Wisconsin Historical Collection, one by a man who was appointed by Cass on the trip at Prairie du Chien.

My attention is directed to the line of evidence on Transcript page 2847 (Abst., 1159), the particular question by defendant's counsel beginning, "If it should appear that in these various county histories."

3478 Most of the county histories began at an early period and ran down to a late period.

I put in passages about hauling goods by wagon and about stage lines connecting with steam boats at the head of steam boat navigation on the Illinois.

I do not recall any affirmative statement that at that time the Desplaines was not used by boats of the same kind that were used on rivers like the Illinois and the Fox-Wisconsin prior to the introduction of steam boat navigation in the west.

3479 I read over the two translations of Charlevoix, to which I have referred. Where I find they differ I went to the original and found out in what respect; don't know as I made a careful study to find out whether one might be called a free translation and the other a literal translation.

3480 I did not state my conclusions in regard to that in my direct evidence.

At transcript page 2990 (Abst., 1205) I stated "Charlevoix, in September, 1721, fully intended to use the route of the Desplaines, but because the river was a mere brook at that place, took another route, even though he was in a canoe." He stated another reason also.

I have put Charlevoix in the second class of these writers, namely, those who passed over the route but did not use the Desplaines; he passed over the same general route, but did not pass down the Desplaines.

3481 In putting him in that class I had in mind the general weight that I would give to his evidence. This classification is subject to the criticism that he did not pass down the Desplaines, but since he made particular inquiry in regard to it and is forced to take another route, I put him in that same general class as men who would speak of that general condition.

3482 His statement that the river was a mere brook is probably not entitled to the weight which should be given the statement of an observer who had passed over the route and been unable to use it, but he made particular inquiry in regard to that, fully intended to use it, and because of information procured he turned and went the other route.

The basis of my general classification was to separate those who had had the opportunity to personally observe, so what they said was what came under their own eyes and those that did not, but taking that general classification, it is open to this criticism, that it did not actually pass over that particular route.

3483 As a historical expert, I don't think that one reading my classification would give greater weight to Charlevoix's characterization of the Desplaines as a mere brook than he should give to it; wouldn't put it that way; you would give greater weight perhaps to him than you would to Darby or Keating. And it was with this idea that I separated the men in making this classification. I think Charlevoix is entitled to greater weight than Keating, because he intended to use the route and made inquiry upon that particular point, and found a condition which he recorded. Therefore, would give him greater weight than one making statements I cannot check up.

3484 I checked it up simply from inquiry on that particular point. Charlevoix cites no authority for his statement that the river was but a brook, etc., simply leaves us the rec-

ord of his experience and points out why he took one route and why he didn't take the other.

Q. Among historical critics is it your opinion that the statement of Charlevoix which does not show upon what it is based, is entitled to greater weight than the statement of Keating, which does show upon what it is based, other things being equal?

A. If I checked up Charlevoix and found that Charlevoix's facts were not correct, or if I found out that he was a
3485 careful observer, and had not narrated things correctly, I would give them different weight.

Mr. WILKERSON. Motion to strike out answer as not responsive.

3486 If Keating makes a definite statement and cites Hopson as authority, I would give that weight; and I presume I would give it greater weight than a man who cited no authority on general principles. In this particular case it seems a fair interpretation that Charlevoix was inquiring or was informed after investigating in regard to these sources, and he was giving information upon this particular point after inquiry.

3487 I have not gone to Charlevoix and checked him up as carefully as I have some other men. I submitted the translation and the original for the work of the linguist to decide whether those translations were correct.

In view of the known facts and data that I have in mind, I think the characterization of the Desplaines as a mere book is appropriate.

He states that he found this river was a mere brook when he was there; does not say whether it was low water, or not; he says it was in September, 1721.

3488 Referring to my classification of the different authorities which have been referred to in this case, first, those who used the route; second, those who passed over the route, but did not use the Desplaines; third, men who were in Chicago, but did not pass over the route; and four, men who were probably never in Chicago, and other secondary sources, as to where I would now put Charlevoix, I would say that if you mean the question as to the weight I would put on him, I believe I would leave him in the class where I did.

COUNSEL FOR GOVERNMENT. No. I am talking about your classification.

A. Well, it would be incorrect as I have stated to conclude

that Charlevoix passed down along the Desplaines river, but he passed over this general route.

As to which one of the classes, one, two, three or four, he properly belongs, adhering to that classification from that standpoint, and not considering the weight of the evidence, I would say, the classification as I have made it on page 2987 shows the principal idea that I had in mind, or one of the ideas that I had in mind. I have divided the authorities
3489 into four classes according to their value as evidence, and then I made a general classification, after that; and these four classifications would be open to the technical criticism that counsel has pointed out.

As to where I would put Charlevoix, I would say I believe I would leave him, so far as his value as to evidence is concerned, where he is. That is to say, so far as its value as evidence is concerned, I would put Charlevoix down as one who passed over the route, but did not use the Desplaines. I said in my answer, I think so far as the value as evidence is concerned, I would put him right where I did; but so far as the technical question as to whether he passed over the route is concerned, he did not.

Q. Omitting the reference there to the value as evidence, and taking the four classes as you have divided them, first, those who actually used the Desplaines, second, those who passed over the route, third, those who were in Chicago but did not pass over the route, and fourth, the men who probably were never at Chicago and other secondary sources; where do you put him?

A. I think my answer will bring out that point, too.
3490 My direct evidence points out whether he passed over the route and my answer just previous to this points out whether he passed over the route.

Q. I want to be perfectly fair about it, Mr. Lee, because I am going to insist on an answer to this question. First, the four classes of witnesses, those who actually did pass over the Desplaines.

A. Well, he did not actually pass over the Desplaines.

Q. To which one of these classes does he belong if he does not belong to the second class?

Mr. Scott. I object because the witness has fully stated in answer to the same question exactly where he puts him.

A. I think I have, Mr. Wilkerson.

Mr. Wilkerson. Q. Does he belong in the second class?

Mr. Scott. I make the same objection.

A. Judging from the standard I used, judging as to the value of the evidence—

Mr. WILKERSON. Of course if you want to dodge the question, all right.

Mr. SCOTT. I object to the counsel's unwarranted remark, it being a mere trifling examination where the witness has answered over and over again, and I shall turn on you when I take up Mr. Thwaites as to what he said about Charle-
3491 voix being over this route.

Mr. WILKERSON. In view of what counsel has said as the the trifling examination I will state in the record that Charlevoix was obviously put in the second class, a class of witnesses which the witness has stated is entitled to greater weight than other classes of witnesses, in order that one reading this statement might infer that the weight to be given to Charlevoix's testimony is the weight which would be given to someone who had passed over this route.

Mr. SCOTT. Which of course it is clear from the context that he never did, and if it is so, it is a matter for counsel to argue. If that clearly appears what is the use of this examination? It makes it appear that counsel does not believe it clearly appears or he would not go further with the examination.

Mr. WILKERSON. I shall have to judge as to how trifling the examination is.

Q. In connection with this classification, Mr. Lee, you say you have divided the authorities into four classes according to their value as evidence. Now, was it your intention to convey the meaning that the evidence of those who were put in the first class had greater value because they had used the Desplaines?

A. Yes, I think that was my purpose. That those
3492 who passed over the route had greater value than those who were in Chicago, but did not pass over it. My statement in the direct points out why I thought the various authorities should have greater weight, that is, the men who passed over the route and used the Desplaines.

The reason for making the classification was to furnish a standard by which the value of the evidence could be determined. There were one or two exceptions that I pointed out in my evidence. The case of Kennedy—that while I put him in that class, it was open to criticism.

Judging from the weight of the evidence, I think it clear why I put Charlevoix where I did.

3493 Charlevoix was in Chicago I guess. Don't know as I would class him as a secondary source in regard to the point in question.

Referring to my analysis of Hubbard, transcript page 2964 (Abst., 1197) and my statement on transcript page 2986 (Abst., 1204) "Hubbard gives details of but one trip; states the time as October, 1818, and relates that he carried goods most of the way and put boats onto poles,"—I presumed they used the river whenever they could on the down trip, or on the river all the time excepting when they were on poles. My attention is directed to the following statement from Hubbard:

> "It took us three consecutive days of such toil to pass all our boats through this miserable lake; when we finally camped on the bank of the river, our goods had all crossed the portage and we were more ready to pro-
3494 ceed. Our boats being again loaded, we resumed our voyage down the Desplaines until we reached Isle La Cache, where low water compelled us to again unload our goods in order to pass our boats over the shoal that here presented itself; and again we camped after a hard day's labor.
>
> Our progress from this point was very slow indeed, and most of the distance to the Illinois river our goods were carried on our backs."

They carried their goods on their backs; I think that that is from Isle La Cache down.

I remember reading the statement on page 41 about Mr. Sara, a trader who when on his way with loaded canoes from Montreal to St. Louis with goods for the Indian trade on the river, camped at this point.

3495 I didn't go into Sara very carefully, and didn't use that in my direct evidence. I don't know whether that is a reliable account of the Sara incident, or not. That would be a statement by Hubbard of the conditions that existed at the time of Sara, who was a trader from Montreal. It would be a suggestion I would follow up and test to see whether it would be correct or not. Not having gone into it I cannot state my opinion concerning it. At transcript page 2986 (Abst., 1204) I stated "Hubbard gives details of but one trip."

3496 I recall Hubbard's statement, pages 59 and 60, about sailing up the Desplaines from Cache Island through Mud Lake, to the South Branch.

Q. Wouldn't you say there were some details given of that return trip?

Objection; passage speaks for itself.

A. He does not give as much detail as he does in the other account; points out that their progress was slow; and does not tell what their experience was.

There is sufficient detail to point out that they passed up the Desplaines river and through Mud Lake and to the south branch, regardless of the channel.

3497 As to whether there is anything given on page 74 of Hubbard to indicate whether or not Deschamps made this trip during the year Hubbard was not with him, would say I would judge Deschamps came with his brigade to the Illinois river. There is nothing there given as to whether he used the Desplaines river or whether he did not.

The second trip of Hubbard, referred to on page 104, "the water was unusually low this season," was in the fall of 1821; the same year that Schoolcraft came up in August, when his experience was that the water was so low that he could cross without wetting the soles of his feet.

My attention is directed to my statement on transcript page 2964 (Abst., 1197), relating to the account of the third trip referred to in Hubbard, page 124, my statement being, "No account is given of the second trip, while concerning the third trip he writes that because the Desplaines would not even at spring time carry his heavily loaded boat, he was compelled to make an extra trip."

I based that statement on the following (reading):

"The season had been an unusually good one, and we had accumulated more furs and peltries than our boats
3498 could carry up the Desplaines river, and I was accordingly dispatched with four boat loads to Chicago; these I stored with Mr. John Crafts, and returned to the 'brigade' when we all moved forward on our annual return to Mackinaw."

Because of the heavily loaded boats which he could not carry on the Desplaines, he was compelled to make an extra trip. (Reading):

"A portion of our furs were shipped from Chicago, for the first time, in a small schooner which had brought supplies for the garrison."

I don't think that that means that they could not only not carry them on the Desplaines but that they could not carry them on Lake Michigan, and had to ship them on a schooner.

The exact statement is "we had accumulated more furs and peltries than our boats would carry by the Desplaines river."

3499 My attention is directed to the statement in Cooley's "Lakes and Gulf Waterway," 1891, as follows:

"The navigable waters of the Desplaines as reserved for public use by the original land survey made in 1821 approach at Summit within seven miles of the waters of Lake Michigan, the south branch of the Chicago river at Bridgeport."

I am not sure that I had read that or had it in mind when I was putting in my passages from Cooley, and making my deductions.

3500 I read from Lakes and Gulf Waterway, 1888, by Cooley.

The statement from Tousey I had in mind when I said on transcript page 2991 (Abst., 1205) that he had reported positively against the navigability of the Desplaines, is as follows (reading):

3501 "For many years I had felt a most anxious desire to see the country between Chicago and the Illinois river, where it has generally been, ignorantly, supposed that only a small sum would be wanting to open communication between them."

I don't recall that Tousey makes a definite affirmative statement that the Desplaines river could not be used by boats of any kind. An inference that might be drawn from Tousey's account might be that he had in mind a communication between Lake Michigan and the Illinois river which could be used by larger boats than those generally used on those rivers at that time, which is what he means by his exalted notion of the enterprise.

3502 He does not state so. I presume he had in mind the commerce of the river at that time, and possibly the commerce of a future time.

Counsel states that at transcript page 2995 (Abst., 1206) I was asked as to my opinion as to whether or not the Desplaines was in its natural condition navigable for purposes of useful commerce and that I answered that it was not. There is an implied meaning that I had some idea as to the natural condition of the river, that it was in an unimproved state; that I had some idea as to what constituted navigability as designated by "navigable for purposes of useful commerce;" and necessarily implied that I had some idea as to what was

meant by useful commerce. To answer that question I would not have to draw any conclusion other than that the natural condition of the river would be in its unimproved condition.

3503 Don't think you can well separate those two ideas, as to navigability and navigability for purposes of useful commerce.

This would be navigable for the purposes of useful commerce. It might be navigable for a hundred and one other things, or possibly not so many, but for some other things. I have navigability in this sense, navigability for the purposes of useful commerce.

3504 To reach a conclusion would have in mind the navigability for purposes of useful commerce, and none other than is expressed in those words.

It floating logs down a river were for purposes of useful commerce, I suppose that would be navigability.

A river might be navigable and still have rapids.

3505 I have pointed out the lines of evidence and basis on which I drew my conclusions, and pointed out where it has been used for commerce and where for other purposes.

It might be navigable for purposes of useful commerce or navigable, I presume, for light canoes, or for the particular thing that was going down it. If there was water there, a canoe, or the bark, or the pirogue, whatever it was that was used, it would be navigable for those particular things that were going down it. By useful commerce I have in mind anything that a merchant would use and carry on regularly

3506 for commercial purposes; furs would probably be useful commerce.

I suppose I would call the fur trade and supplies for the Indians, such as was carried on between Canada and the territory along the Ohio river useful commerce. To that extent, I presume I must necessarily draw a distinction between useful commerce and what would not be commerce at all; one must make a distinction of some kind in using terms.

Q. Wouldn't your answer depend necessarily upon what the examiner meant by navigability, and whether or not in asking the question he had in mind the same definition that you had?

Objection; immaterial and irrelevant; the generalization would not and could not depend at all upon what the examiner had in mind.

3507 A. I don't know that it would.

The answer would depend, possibly, on what I had in mind; I had a general idea of being navigable for purposes of useful commerce. In order that my conclusion could be understood, it is not essential necessarily that I and the examiner understand the same thing by the term "useful commerce." My conclusion was based upon what I conceived useful commerce to be.

3508 Have indicated the extent to which my researches have revealed the use of the Desplaines. In some cases for trade and in some only for canoe trips, and one in search for the deserters of the army; I believe in the case of Furman. I have simply indicated definite cases which I enumerated in my direct examination, wherein it appears that it was used in two or three cases for commerce, and in other cases for light canoes. I found that it was used for the transportation of persons and property in the cases I have cited and as I have cited.

3509 I stated the size of boats that were used and whether it was a canoe or pirogue. Whether the boats used were in common use at the time the transportation occurred, would involve a knowledge of the common use. I suppose canoes were used by people, whether on the Desplaines or some other river. I have cited as near as I can the evidence as to the size and kind of the boats used on the Desplaines. I presume the canoes used throughout this part of the country at the time were of the same general kind, and likewise the boats they attempted to use, but they might have been of different sizes. I am not sure that I know what size boats Hubbard used.

3510 Presume they were the boats that were used by the fur traders back and forth. Do not recall whether it stated they carried three tons. My direct evidence states all I have on that point.

3511 On transcript page 2986 and following (Abst., 1204), I point out the information I could get in regard to the size of the boats that were used on the Desplaines. I take Hubbard first.

3512 He says "boats" but nothing in regard to the size of the boats, that I could find.

I recall the statement in Graham and Phillips that boats of 6 or 8 tons made the passage over the portage to the Des-

plaines; as I remember the reference you give now, they passed over without making a portage.

3513 I recall the statement in Volume II of Keating, that boats of burden frequently used the route.

3514 The early settlers of the south and west of Chicago, within a radius of 50 or 60 miles generally speaking came from the north; the Middle States, New York and New England in distinction from the source of the population from the south.

3515 As to whether they were farmers, or not, I have not taken up that point in detail. Some of them brought wagons and oxen and horses with them; others came by the lake route. I don't think I reached any conclusion as to how the people came in.

3516 Referring to my first conclusion, on transcript page 2996 (Abst., 1207) it would necessarily convey the idea that the writer had some idea of the meaning of navigable in the sense. I don't see that any of the reasons for my conclusions proceed upon the theory that although the river had been once used did not continue to be used when the character of the settlements changed. It is simply a question that during the period of settlement, if it had been navigable it would have been used by those early settler when they came in, and it would have been used after they came in.

3517 In my second conclusion, in the latter part where I used the word navigability, an idea would be in the mind of the writer as to what navigability meant. In my conclusions I have had no theory in my mind that a river which has once been used for the purposes of commerce ceases to be a navigable stream because its use is discontinued.

3518 In my conclusions in my direct as to the extent to which I found the Desplaines navigable, I point out my authority, and those which used it for commerce. I stated several instances of people attempting to use the Desplaines for commerce, for instance, Hubbard. His experience was from 1818 to 1824, and steamboats did not reach as high as Peoria on the Illinois river until 1830. Evidently he was not using steamboats.

3519 They were attempting to improve the rivers from 1830 to 1840, for vessels, as I remember it, that were used upon the rivers at that time, and from memory I would say they were steamboats.

3520 The second branch of my third reason for my conclusion transcript page 2996 (Abst., 1207) refers to the head of navigation as on the Illinois river. I drew my conclusions from the authorities cited, which speak of the head of navigation in 1830; this probably referred to steamboat navigation. I am not sure whether during that early period they would think of steamboat navigation, or not. Certainly later they would think of the head of steamboat navigation. If steamboats were used after 1880, and I recall one or two as high as Peoria, it might be the head of steamboat navigation.

3521 The second subdivision of my third reason did not necessarily involve on my part the conclusion, nor convey the idea that a river is non-navigable unless it has been improved so that it can be navigated by steamboats, if improvement is necessary. I do not think I drew my own conclusions there. I merely stated that as a reason, that the head of navigation was always referred to as on the Illinois, and cited authorities.

3522 There would be involved whatever vessels were used at that time. If it was wholly steamboats, that is evidently what they were thing about; if it was something else they probably included the whole idea. I pointed out what to my mind constituted navigability. Whenever I use the word navigable the meaning that is to be conveyed by my mind by that word is conveyed. I recall no places where I purposely distinguished or by mistake made any distinc-

3523 tion which could be made. Had a certain idea of what constituted navigability and that I have given you, and I have used the word in that connection.

The third branch of my third reason states in effect that the Canal Commission of 1825 report that the Desplaines was not navigable. The following paragraph was taken into consideration in that connection. (Reading) page 23:

> "Many, and indeed we may say nearly all, of the canals that have been constructed, except those in the State of New York (the ultimate effects of which are destined to embrace objects of greater importance) or for the purpose of facilitating the communication along an accustomed highway; opening to commerce no new field—giving to agriculture no new excitement; but in relation to the intercourse between the Illinois and Lake Michigan the case is widely different. Here the canal will not only

furnish a safe and expeditious mode of conveyance between two important points, but to open the western states a new and additional market, and by the reciprocal advantages afforded, excite their citizens to industry
3524 and enterprise. It will, in truth, be adding one of the most important links to the American Commercial Chain, which must, by its effects, bind together the respective interests of the Atlantic and Western states, consolidate the commercial and political policy of the most distant parts of the Union, and give to the patriot a grateful theme."

It seems to me that involves the idea. He speaks about constructing new canals which are to open to commerce no new field; then he speaks about the Illinois and Lake Michigan and says the case is widely different, that it would open to the Western States a new and additional market. It conveyed to their mind that to open a communication that would be navigable they must make improvement.

Q. Do you think that the fact that they were to open a canal in order that a larger commerce might be carried on is equivalent to a report that no commerce could be carried on the river?

Objection; excerpt does not speak of a larger commerce, but contrasts between accustomed highways and one where there was none.

3525 A. I think I have answered it.

3526 The report has the idea clearly that it was not navigable. If it had been so they would not have used this language, that a canal would open a new market. I do not find the exact wording that it was not navigable.

When I said fourth, that it was not considered navigable by the legislature or Governor Coles, I had in mind the evidence I submitted in my direct in that connection, based upon the study I had made. My recollection is that I submitted evidence from the legislature.

3527 As to whether I recall that I submitted any act or resolution of the legislature expressing any opinion as to the navigability of the Desplaines, will say nothing positive.

3522 Here is one thing that gives a little light on the attitude of the legislature, but does not give positive evidence: Governors' Letter Book, 1818 to 1834, Vol. 4, page 85. "A letter from James B. Ray, Acting Governor of Indi-

ana"; points out that he has called the attention of the
3529 legislature to the need of connecting by artificial channels the navigable tributaries of the Mississippi with those of the great northern lakes. Then he says (reading):

"I have so far succeeded as to have provision made by law for the examination of the country and a survey and estimate of a canal connecting the former; and in connection with Indiana to have the obstruction to the navigation of the Wabash examined as far as the river was the common property of both states, and estimates made of the probable expense of removing them and perfecting the navigation. Reports in both cases were laid before the last General Assembly, and I renewed my recommendation and strongly urged on the favorable consideration of the members, the propriety of making provision for speedily commencing these desirable works. But, a majority were doubtful of the ability of the state to undertake them, and preferred incorporating companies in both cases. This was done, and I immediately transmitted to Gov. Hendricks the copy of an Act incorporating companies to perfect the navigation of the Wabash, which required the concurrence of Indiana for the purpose of having it acted on by the legislature of that state during its last session. * * * You will see from the foregoing brief statement of what has been done by this
3530 state, and from your knowledge of our resources, the local situation of our country, the character of our people, the nature of the obstructions to be removed, the immense advantages resulting and consequently the strong inducement to exertion you can judge whether I am mistaken in supposing the time not for distant when the waters of the Wabash and Erie will mingle and waft on their bosom vessels ladened with the products of their vallies."

The WITNESS (continuing): This is simply an indication that the State of Illinois was surveying for the construction of an artificial channel, which would connect the Illinois with Lake Michigan; they finally built it.

3531 I notice that this Select Committee of the House of Representatives of the United States, transcript, page 306 (Abst., 140) of which you speak, calls attention to the fact that a memorial of the General Assembly of the State of Illinois praying aid to open this canal has been sent to Congress; that the commissioners appointed by the State of Illinois had

not yet reported; further represents that the state is unable from its own resources to defray the expenses of the undertaking, and therefore prays Congress to make to the state a grant of public land, or such other assistance as may be thought proper to enable the state to proceed with the work.

3532 This committee questions the practicability of a route and say they entertain no doubt on the point, since their conclusions are based upon scientific observation and actual experience. The experience to which they refer being a passage by an uninterrupted communication from the river into the lake, and which is a matter of historical notoriety, and scientific observations—the report of Major Long. All this report shows from the present examination is that they think it practicable, to connect the waters of the Illinois and Lake Michigan, basing it on the two lines of evidence pointed out.

It don't think that is all that the report of the canal commissioners amounted to. They have gone into it with more detail, and these people did not have that report.

3533 Think my analysis and conclusions in regard to report of Select Committee of Congress in favor of navigability of Desplaines and report of Canal Commission of 1825 against it will stand as I have made them.

Question of prices between Chicago and Peoria would necessarily refer to a period when there was exports from Chicago and when there was commerce between those two points. Fifth conclusion might rest upon further assumption that river is not to be regarded as navigable because steamboats were not used regularly upon it if steamboat was only method of transportation at that period. Does

3534 not necessarily involve assumption that the navigability I have referred to is steamboat navigation. If there was navigation between those two places of any kind, the difference in prices would be no more than the cost of transportation. That would be true whether there was navigation or not. If river had been improved and there was continual navigation there is no doubt there would not have been this difference in prices. If there had been navigation between Peoria and Chicago or upon Illinois river, there would not have been the difference in prices. In using the word "navigability" I simply spoke about whether river was used for purposes of useful commerce in its unimproved state.

3535 As to whether I had in mind river which could actually be used and not one which could be improved so it could be, will say I think I have answered that question.

Q. That is what you have had in mind, isn't it, one that could actually be used?

Mr. SCOTT. I object; last preceding answer covers exactly question asked. Read answer; do not believe Mr. Wilkerson caught it.

(Previous answer read.)

The WITNESS. Taking my sixth conclusion, "The Illinois and Michigan canal changed the direction of freight." As to whether that conclusion does involve the assumption on my part that the Desplaines river has not been used for the carriage of freight for some time prior to the construction of the canal, and as to whether, therefore, the conclusion does involve a decision by me as to whether the Desplaines river was not navigable because it was not used for transportation of freight by water in the way in which transportation was then carried on, I would say that my conclusion there is stated clearly, that the Illinois and Michigan canal changed the direction of freight. Before the construction of the Illinois and Michngan canal, the commerce down along the Illinois river went by way of New Orleans and St. Louis, and after that period it commenced going by the north. It does not mean that all the commerce came immediately by way of the Illinois and Michigan canal.

Q. Now, Mr. Lee, I do not ask you as an expert on navigation, but from your experience in the study of the population and settlement of countries, and from your examination of all the historical references that have been included in your
3536 examination, and which have been referred to in your examination, I will ask you to state whether you have an opinion as to whether or not the Desplaines river was in its natural condition used for the purposes of useful commerce?

A. Are you asking me that question now?

Q. Yes.

A. I think that question has been answered, has it not? What page do you find it on?

Q. Read the question.

(Question read.)

Q. That is Mr. Scott's question, and I have changed the word "navigable" to the word "used."

A. I think I have pointed out, Mr. Wilkerson, the extent to which the Desplaines was used for purposes of useful commerce.

Q. Can't you give me the same direct answer to that ques-

tion that you gave Mr. Scott to his question? Read Mr. Scott's question and the answer and see if you can not give me just as direct an answer to my question as you gave Mr. Scott to his question.

A. I have found no evidence that the Desplaines was used for purposes of useful commerce during any regular period, or regularly.

3537 Q. At any time?

A. To give a full and complete answer to that I would have to give a detailed account of just how much it has been used. It was used for commerce by three men, that is the evidence that I have found. Those men were Perrault and Heward and Hubbard if I remember correctly.

3538 I do not think of any fundamental distinction between Mr. Scott's question on page 2995 (Abst., 1206) of record and your question on record page 3535.

Should not think that the river was used for purposes of useful commerce during that period. Should think it was not used; might add, for purposes of useful commerce regularly, or at any time, as far as the evidence that I have seen is concerned.

Mr. Wilkerson. That is all. Let the record show a motion to strike out the testimony of this witness on the ground that it does not appear by his examination, and it affirmatively appears by his cross-examination that he is not qualified to testify about the matters which he has testified to; and second, let the record show a specific motion to strike out each one of the conclusions of the witness as to which he is undertaking to testify as to the navigability or alleged navigability of the river.

The Witness (continuing): The evidence I have seen

3540 of the use of the river I have pointed out and the attempted use which Hubbard made he indicates. He used river in the way in which he indicates and he outlines three or four trips; no, two trips, I guess; one trip only that he gives details. We have that evidence of his use on the trip once, using it in the way that he did. When I said yes I meant that the river was not used at any time in which I would find regular commerce.

3541 *Re-direct Examination by Mr. Scott.*

On the 10th of March, this year, I gave to you as counsel for the defendant in this case copy of my thesis. Had not then

done any work for defendant in preparing for hearing in this case. Had not been informed defendant would desire me as witness in this case. That thesis has not been changed in any way since delivery of the copy to you on March 10th. Copy delivered to counsel for government in my presence during this hearing. Newspapers and county histories used in my direct were used by me before I met you and in the preparation of my thesis, as my footnotes will show. Thesis contains footnotes for the au-
3542 thority of statement I make. Think all of newspapers referred to by me on my direct are referred to in those footnotes. With regard to the county histories referred to in direct, used everyone of them that I now remember; think every one, if not, certainly large percentage of them. Would have to look that up to find out whether all of them were. Think in first chapter of my thesis there appeared a paragraph under heading of marginal note: "Settlement chiefly along the rivers."

Q. Will you read that into the record?

Mr. WILKERSON. Objected to as incompetent, irrelevant and immaterial; not proper redirect examination.

A. I read from page 4 of chapter 1, heading of paragraph is "Settlement chiefly along the rivers."

"This settlement and development took place chiefly along the rivers. The rest of the country for the most
3543 part remained unpeopled and unimproved. This condition existed because the rivers furnished power for the mills and factories and were the main channels of commerce. Because, too, of transportation upon them they provided markets for the surplus products of the soil. Grain was exchanged at these river markets for clothing and articles of import. There, also, wheat was ground into flour and corn into meal. St. Charles on the Fox River, 'buzzing and roaring and ratling' with all kinds of machinery, was likened, in 1845, to the city of Lowell, Massachusetts. Thus almost every pioneer activity was confined to the river districts, which became well settled and well developed, while the prairie remained uninhabited and unorganized."

Don't know exactly date of settlement of Joliet. About 1831, or '32 or '33. Have seen references to it in my work in Illinois History as Juliet. Suppose it refers to same town.

There is a town in same neighborhood known as Romeo, I believe. It is right close to Joliet. Don't know exact location.

Have seen references to water power at Joliet as being
3544 great. Believe there is water power there and there is something like thirty feet fall in the river within the limits of the town. Referring to page 3097 of record (Abst., 1229), cross-examination, concerning editorial in St. Louis paper, with special reference to Perrault being at Cahokia and French traders being there, in regard to inference drawn as to trade by way of Illinois and lakes, have two or three references bearing on the course that the trade of the French from Cahokia, and in that vicinity, took during the period in question. DuPratz History of Louisiana is one volume. On pages 181 and 182 of that volume I find following (reading from page 181):

> "It is by this river of the Miamis that the Canadians come to Louisiana. For this purpose they embark on the river St. Lawrence, go up this river, pass the cataracts quite to the bottom of Lake Erie, where they find a small river, on which they also go up to a place called
> 3545 the Carriage of the Miamis; because that people come and take their effects, and carry them on their backs for two leagues from thence to the banks of the river of their name, which I just said empties itself into the Ohio. From thence the Canadians go down that river, enter the Wabache, and at last the Mississippi, which brings them to New Orleans, the capital of Louisiana. They reckon eighteen hundred leagues from the capital of Canada to that of Louisiana, on account of the great turns and windings they are obliged to take."

That is the 1774 London edition of DuPratz. Think have given date in my former testimony of when DuPratz wrote. Page 182 is the following:

> "In those countries there is a river, which takes its name from the Illinois. It was by this river, that the first travellers came from Canada into the Mississippi. Such as come from Canada, and have business only on the Illinois, pass that way yet; but such as want to go directly to the sea, go down the river of the Miamis into the Wabache, or Ohio, and from thence into the Mississippi.
>
> In this country there are mines, and one in particular, called De la Mothe's mine, which is silver, the assay of
> 3546 which has been made; as also of two lead-mines, so rich

at first as to vegetate, or shoot a foot and a half at least out of the earth."

Next reference I have is taken from Hutchins Topographical description of Virginia on p. 497 of Imlay's America, 1797 edition (reading):

"Ouiatanon is a small stockaded fort on the western side of the Wabash, in which about a dozen families reside. The neighboring Indians are the Kickapoos, Musquitons, Piankashaws, and a principal part of the Ouiantanons. The whole of these tribes consists, it is supposed, of about 1,000 warriors. The fertility of soil and diversity of timber in this country, are the same as in the vicinity of post Vincent. The annual amount of skins and furs obtained at Ouiantanon is about 80001. By the river Wabash, the inhabitants of Detroit move to the southern parts of Ohio and the Illinois country. Their route is by the Miami river to a carrying-place, which, as before stated, is nine miles to the Wabash, when this river is raised with freshets; but at other seasons, the distance is from 18 to 30 miles, including the portage. The whole matter of the latter is through a level country. Carts are usually employed in transporting boats and merchandise from the Miami to the Wabash river."

3547 Next reference is Coxe's Louisiana, "A Description of the English Province of Carolana, by the Spaniards called Florida, and by the French La Louisiana. As Also of the Great and Famous River Meachacebe or Mississippi, the Five Vast Navigable Lakes of Fresh Water, and the Parts Adjacent. Together with an Account of the Commodities of the Growth and Production of the said Province. By Daniel Coxe." Think that was published in 1722; nothing given here. As to whether it is the original edition; no date is given. Is found in Hostorical Collections of Louisiana, French, Vol. 2. I read from page 231 of that volume.

Mr. WILKERSON. Objection: incompetent, irrelevant and immaterial, not proper redirect; further, on ground book not suffciently identified.

The WITNESS. Book that I read from, Coxe's Carolana, is written by Daniel Coxe, as I understand, based upon notes taken by Dr. Coxe, who was, I think, physician of Charles II of England, and as I understand, was published in 1722 (reading):

"On the southeast bank of this river, Monsieur de la 3548 Sale erected a fort in the year 1680, which he named

Creve-coeur, from the grief which seized him on the loss of one of his chief trading barks richly laden, and the mutiny and villainous intrigues of some of his company, who first attempted to poison and afterwards desert him. This fort stands about half way between the bay of Mexico and Canada, and was formerly the usual route of the French in going to or returning from either of those places; but since, they have discovered a nearer and easier passage by the Ouabache and Ohio, the sources of both which rivers are at a small distance from Lake Erie, or some rivers which empty into it."

That is all the reference I have on this point, I believe. I have a reference to Carter's work which points out where the trade of this area was going. Have referred to the work on cross-examination and think I have sufficiently identified it. That is the work in which Mr. Alvord's name was referred to in the preface. It says in the preface, in regard to that (reading):

3549 "I desire to express my gratitude for aid and encouragement to Professor Evarts B. Greene, in whose seminar in history at the University of Illinois this essay was begun, and especially to Professor Clarence W. Alvord of the University of Illinois, whose intimate knowledge of the field has been of material assistance throughout my study. I also wish to express my thanks for helpful criticisms of the manuscript to Professor Guy Stanton Ford of the University of Illinois, to Professor C. H. Rammelkamp and to Professor J. Griffith Ames of Illinois College, and to Professor Charles H. Hull of Cornell University, chairman of the Justin Winsor Prize Committee. I owe an especial debt of gratitude to my wife and faithful amanuensis, without whose encouragement the essay would not have been completed in its present form."

This is one of the theses written by men for the Justin Winsor Prize; prize essay of the American Historical Association, and was given a prize. Was recognized as standing authority, carefully written piece of work among authorities. The

3550 Justin Winsor referred to is same authority who has been referred to in the testimony here. On page 11 of the book which I have in my hand I find the following (reading): "The relation of the Illinois country to Louisiana was economic as well as political."

Book deals with period of 1763 to 1764 (reading):

"All of the trade of the upper Mississippi valley was

carried on through New Orleans, and the southern colony often owed its existence to the large supplies of flour and pork sent down the river. Although the inhabitants occupied themselves chiefly with hunting and with trading with the Indians, they yet raised a considerable amount of corn, wheat, and various kinds of fruit, which, together with cattle and hogs they frequently shipped to the New Orleans market."

Mr. WILKERSON. Objection to this on ground of incompetency, immateriality and irrelevancy and further that it is not proper cross-examination.

The WITNESS (reading from page 81):

"The foregoing considerations serve to indicate the importance which the ministry attached to the Indian
3551 trade in general. But what of the trade in the Illinois country? This region had been one of the great centers of the Indian trade under the French regime; and in addition the French inhabitants had been one of the main supports of New Orleans since its foundation early in the century. The commercial connection between the Illinois villages and New Orleans had never been broken, and at the time of the occupation of Illinois in 1765, French fur traders and merchants still plied their traffic up and down the Mississippi river. Now that the title to this trade centre had passed to England it was expected that the volume of trade would be turned eastward up the Ohio river. The necessity for this was patent if any material benefits were to accrue to the empire from the cession, for failure to carry out the plan would leave the country a dead weight on the empire.

The home and colonial authorities early saw the importance of turning the course of the trade. They hoped and expected that a trade would be opened with the Indians in and about the Illinois country immediately after the active occupation by the English troops. A large number of individual traders were early aware of this and representatives of some of the large trading companies of the east were also preparing to take advantage of the opening of the west to trade. In 1765 Fort Pitt became the great rendezvous for this element.
3552 From this point traders, with their cargoes to exchange for the Indians' furs, followed the army to Fort de Chartres as soon as the season of the year would permit."

(Page 88) reading:

3553 "It has been expected that the Illinois villages would be the center of trade for the English side of the upper Mississippi Valley just as it had been one of the centers during the French regime. But the English were not so well situated to command the trade as the French had been. Previous to this time the trade of the Missouri river region had centered at the Illinois posts, but after the cession of the west to England and the foundation of St. Louis by Laclede in 1764, the latter place drew all the trade west of the Mississippi. Moreover, except for the few tribes of Illinois Indians in the immediate vicinity very few savages found their way to Fort de Chartres for trading purposes. English traders, on the other hand, did not trust themselves far beyond this narrow circle, but their French and Spanish rivals from Louisiana, many of whom formerly lived in the Illinois country, carried on a trade in all directions both by land and by water. They ascended the Ohio, Wabash, and Illinois rivers, and crossed the Mississippi river above the Illinois, plying their traffic among the tribes in the region of the Wisconsin and Fox rivers. This was probably the most productive area in the Mississippi valley in the supply of fur bearing animals. The Mississippi river northward from its junction with the Illinois was also considered especially good for the peltry business, the otter, beaver, wolf, servine, and

3554 martin being found in abundance, but the British traders dared not venture into that quarter. The loss of this trade, however, cannot be attributed altogether to their misconduct, for the French had never allowed it to pass from their own hands. The latter continued to intrigue with the Indians throughout the greater part of this period just as they had done prior to 1765. As we have seen they pointed out to the savages how they would suffer from the policy of economy practiced by the British government. Thus by giving presents and by circulating stories and misrepresentations the French subjects of Spain attempted to checkmate every move of the English. The Indians were constantly reminded of the bad designs on the part of England, and were encouraged with unauthorized promises of aid in case they should take up the hatchet in defense of their hunting grounds."

On page 88, a footnote as follows:

Mr. WILKERSON. Same objection.

(Reading):

"'To ascend the Mississippi or Illinois rivers with Goods would be certain death, so great is the influence of the French there.' Morgan to Baynton and Wharton, December 10, 1767, MS. letter book. Lieutenant Hutchins, as English engineer, who spent a year in the Illinois country, stated that the 'Peltries in general that are sent from the British side are obtained from the
3555 French traders on the Spanish Shore, as no Englishman can with safety venture among the Savages.' Hutchins, 'Remarks upon the Country of the Illinois', MS. in Hist. Soc. Pa. Library."

On page 89 (reading):

"During the first years of the British occupation there was considerable friction in the contact of the two alien peoples in the Illinois villages. In spite of the fact that the French who remained became subjects of Great Britain sharp competition existed for several years between the English and French residents in the vicinity of the villages. The latter were on terms of friendship with the savages and could go into any part of the country without difficulty and those Indians who came to Fort de Chartres to trade generally preferred to deal with their trusted friends. The French often carried the packs of furs thus obtained across the river to St. Louis or transported them directly to the New Orleans market. Although the British merchants were occasionally able to pool their interests with the French residents, such cases were exceptional prior to 1770. In that year, however, General Gage informed the home government that 'the competition between his Majesty's old and new Subjects is greatly abated and must by degrees subside, for if carried to extremes it would be very prejudicial to both."

3556 Naturally the large quantities of furs and skins obtained by such contraband trade as well as by the French residents of Illinois were taken directly to New Orleans and there embarked for the ports of France and Spain. These foreign interlopers, however, only followed the route to which they had long been accustomed. On the other hand it was expected by the government that the

traders who carried English manufactured goods down the Ohio river would return by the same route with their canoes of peltry for the purpose of transporting them to England. But in this the government was disappointed. English traders and merchants followed the line of least resistance, the route down the Mississippi to New Orleans. Moreover, the New Orleans market was attractive, for peltries sold at a higher price there than in the British markets. The tendency of the English traders and merchants to follow this course was discovered soon after the occupation. In a communication to Secretary Shelburne in 1766 Gage informed the government that 'it is reported that the Traders in West Florida carry most of their Skins to New Orleans, where they sell them at as good a price as is given in London. As I had before some Intelligence of this, the Officer commanding at Fort Pitt had orders to watch the Traders from Pensilvania who went down the Ohio in the Spring to Fort Chartres; and to report the quantity
3557 of Peltry they should bring up the Ohio in the Autumn. He has just acquainted me that the traders do not return to his Post, that they are gone down the Mississippi with all their Furs and Skins under the pretense of embarking them at New Orleans for England.' A few weeks later he wrote again in a similar strain: 'That trade will go with the Stream is a maxim found to be true from all Accounts that have been received of the Indian trade carried on in that vast Tract of Country which lies on the Back of the British Colonies; and that the Peltry acquired there is carried to the Sea either by the River St. Lawrence or River Mississippi.' Gage seemed to believe that the part which went down the St. Lawrence would be transported to England; but that the peltry passing through New Orleans would never enter a British port. 'Nothing but prospect of a superior profit or force will turn the Channel of Trade contrary to the above maxim.' 'The Traders from these Colonies say that it will not answer to carry Goods down the Ohio, but that it will not answer to return with their Peltry by the same Route as they can get to the Sea at so much less expense, and greater expedition by means of the Rapidity of the Mississippi, and pretend that they have Ships at New Orleans to trans-

port their Peltry to England.' '* * * the British Traders at the Illinois who carry their goods above
3558 three hundred miles by land before they have the convenience of Water Carriage cannot afford to return the same way with the produce of their Trade.' In this opinion Sir William Johnson likewise concurred. Lieutenant John Phyn, of the British Army, who spent some time at Fort de Chartres in 1768, also declared that 'as long as New Orleans is in the hands of another power, the whole produce of that country must centre there. For our merchants will always dispose of their peltry or whatever the country produces, at New Orleans where they get as good a price as if they were to ship them off.' "

On page 93 (reading):

"Conditions, however, grew no better as time went on. In 1773 we find Gage complaining that 'the Trade of the Mississippi, except that of the upper parts from whence a portion may go to Quebec, goes down that river; and has, as well as everything we have done on the Mississippi * * * tended more to the Benefit of New Orleans than of ourselves.'

An examination of the customs returns for the period from 1763 to 1775 indicates that the statements of English officials relative to the productivity of the West were not groundless. Instead of an increase in the number and value of furs and skins imported into England as a result of the French cession of the great fur-bearing
3559 regions of Canada and the Northwest, there is a decided decrease each year. A diminution is likewise to be noted in the value of the exports from Canada during the same period."

I have the Kaskaskia records here. I find something in the memorial of William Newbold and others, to which my attention is called, on page 470 as to how the furs in that upper part of the Mississippi went to Quebec. The full title of the book, reading from the title page is:

"Collections of the Illinois State Historical Library Volume V. Virginia Series, Volume II. Kaskaskia Records 1778-1790. Edited with Introduction and Notes by Clarence Walworth Alvord, University of Illinois. Published by the Trustees of the Illinois State Historical
3560 Library, Springfield, Illinois, 1909."

Mr. Alvord is editor. Excerpt I refer to is on page 470. It is a memorial. Reading title of memorial:

"George Morgan Petitions for Land, May 1, 1788. To the Honorable, the United States of America in Congress Assembled."

(Reading first paragraph to show who the memorial is.)

"The Memorial of William Newbold, Cleayton Newbold & Joseph Newbold of Springfield, John Cox of Bloomsbury, Joseph Bloomfield of Burlington, Joel Gibbs of Mansfield, Daniel Vardon of White-hill, all of Burlington County—George Morgan of Prospect, Isaac Smith, Samuel W. Stockton, David Brearley & Aaron Dunham of Trenton, Richard Stockton of Morven, Frederic Frelinghuysen & Henry Vandike of Sommerset County & Evist Van Wickle of Spottswood Middlesex County, all of the State of New Jersey & William Edgar of the City of New York, by their agent George Morgan duly authorized & appointed for the Purpose."

3561 Mr. WILKERSON. Objected to as incompetent, immaterial and irrelevant.

I understand Morgan is man referred to in evidence heretofore. The excerpt to which I refer reads:

"Your Memorialists are of Opinion that this is the natural channel for 9/10ths of the rich Fur Trade which is at present carried to Canada as Returns may be made to these states in twelve Months which require three & often four Years to be made to Montreal, from the difficulties of the Navigation & the Numerous Portages by the lake of the Woods to the most Northern Sources of the Mississippi, from whence the richest Furs are derived."

Being asked to read first page of Memorial itself, the witness read as follows:

"Respectfully sheweth, That they for themselves & their Associates are desirous to contract for & to purchase from the United States of America, Two Million Acres of Land situated & bounded as follows—Beginning at the river au Vase where the Line of the Army Lands extended due West from the Mouth of the little Wabash River shall strike the said River au Vase, thence due North until a due East line extended from the Mississippi River at the Mouth of Wood River shall intersect the same, thence due West to the Mississippi River at the Mouth of Wood River aforesaid, thence down the

Mississippi River along the Boundary Line of the United States of America to the Mouth of the River au Vase, thence up the said river au Vase along the several Courses thereof to the Place of Beginning—(saving & reserving to the Inhabitants of Kaskaskias, Prairie du Rocher, Fort Chartres, St. Phillips & Kakohia, & all others having just claims, their respective Rights within the said Boundaries, to be determined as Congress shall direct) for which your Memorialists by their said Agent will engage to pay on Similar Terms granted by Congress to other Companies, or on such other Terms as their Agent may deem more advantageous to their Interest."

3563 Q. Now returning to Carter, are there any further references in Carter on this Point?

Mr. WILKERSON. Same objection.

A. Beginning with page 94 of Carter. (Reading):

"It is difficult to figure exactly what the loss to imperial interests was under these conditions. Furs and skins, however, being among the enumerated commodities some loss certainly accrued to British shipping and to the government through loss of the duty, as well as to English manufactures. Although practically no peltries reached the Atlantic ports from the Illinois region, large quantities were carried to New Orleans. The few who have left any estimate of the amount of peltries exported to New Orleans agree in general that from five hundred to one thousand packs were shipped annually from the Illinois country. According to the usual estimate five hundred packs were worth in New Orleans about five thousand five hundred pounds sterling. As the same time the expense of maintaining the various posts and the Indian department was heavy. The Indian expenses at Fort de Chartres alone between September, 1766, and September, 1767, were more than six thousand pounds sterling. In the following years the expenses for nine months in Indian affairs, fitting out an armed galley to prevent illicit trade, and in repairs on Fort de Chartres and new works of defense in expectation of an Indian rupture exceeded two thousand pounds sterling.

3564 There seems to have been unanimity of opinion respecting the commercial inutility of the Illinois and surrounding country under existing conditions. Effective

though expensive measures would have to be taken to change the course of trade and to expel foreign traders. But General Gage was very doubtful about the probable efficiency of any further regulations. Early in 1767 he declared that it would 'not answer to England to be at much expense about the Mississippi' so long as better prices prevailed at New Orleans. Secretary Hillsborough took the same view a few years later, in an argument against the planting of western colonies: 'This Commerce cannot * * * be useful to Great Britain otherwise than as it furnishes a material for her Manufactures, but it will on the contrary be prejudicial to her in proportion as other Countries obtain that material from us without its coming here first; and whilst New Orleans is the only Port for Exportation of what goes down the Mississippi, no one will believe that that town will not be the market for Peltry or that those Restrictions, which are intended to secure the exportation of that Commodity directly to G. Britain, can have any effect under such circumstances.

The original intention of the British government had been to use Fort de Chartres, on the east bank of the Mississippi between the Illinois and Kaskaskia rivers, to guard the rivers in order to prevent contraband trad-
3565 ing. But its inefficiency was soon apparent. Although well constructed, its location was not strategic; it commanded nothing but an island in the river. An indication to the Indians of British dominion and a place of deposit for English merchants constituted about the sum total of its efficiency in order to make the Illinois country effective as a barrier against foreign aggression and to keep the trade in English hands, it was necessary to adopt measures looking toward the closing of those natural entrances into the country, the mouths of the Illinois and the Ohio rivers. Almost all the correspondence of the time relating to Illinois, contains references to the practicability of erecting forts at the junctions of the Illinois and Ohio rivers with the Mississippi. In most cases this was insisted upon as the only practicable measure to make the country of value. Suggestions were also offered relative to the erection of a fort on the Mississippi river above its junction with the Illinois for the protection of that section of the peltry district. Moreover, projects were likewise proposed for the establish-

ment of proprietary colonies on the Ohio and Illinois rivers. Gage himself suggested that all the French villages along the Mississippi be amalgamated into one settlement, which would also be the center of the military establishment, and from which detachments could be sent out to guard the rivers and prevent British trad-
3566 ers from descending the stream to New Orleans and likewise for foreign interlopers."

On page 95 there is a footnote from Hutchins, "Remarks upon the country of the Illinois, 1771."

Mr. WILKERSON. Same objection.

The WITNESS (continuing, reading):

"From New Orleans, where all the western trade finally centered, it was estimated that peltries worth between 75,000 and 100,000 pounds sterling were sent annually to foreign ports. Gage estimated it at 80,000 pounds sterling. Gage to Shelburne, January 17, 1767, B. T. Papers (Hist. Soc. Pa.) Vol. XXVII. 'New Orleans remits one hundred thousand pounds sterling worth of Peltry annually to France,' Baynton, Wharton and Morgan to McLeane, October 9, 1767, *ibid.* Vol. XXVI."

(Reading footnote on page 98): "Gage to Shelburne, April 3, 1767, *ibid.*, Vol. 123; Johnson, 'Review of the Trade and Affairs of the Indians,' *loc. cit.;* Morgan to Baynton and Wharton, December 10, 1767, Morgan's MS. letter book. 'A Post up the Mississippi at or near the Illinois River might leave to us the greater part of the Trade that is now carried to the Settlements on the other side.' Hutchins, 'Remarks upon the Country of the Illinois, 1771,' MS. in Hist. Soc. Pa. Library. George Crogan wrote: 'With respect to the building some new Forts there—I conceive they are indispensably neces-
3567 sary. One at the Mouth of the Illinois and one on the Wabashe; as they would effectually prevent the French and Spaniards from entering into the Indian Country and thereby seducing the trade from us, to France and Spain.' Croghan to Franklin, January 27, 1767, Lansdowne MSS., Vol. XLVIII, fol. 135."

(Reading first paragraph on page 114):

"There was still another important reason for the rejection of interior settlements, which comes to light in contemporary correspondence, but which is not contained in the report of the Board of Trade. During this period Louisiana, with New Orleans commanding the mouth of

the Mississippi river, was in the hands of Spain. New Orleans was practically the only outlet for the western country, and it was the settled conviction of many that so long as it remained in the possession of a foreign power, it was useless to expect much from the West. In 1768 Lieutenant George Phyn of the regular army was sent from Fort Pitt down the Ohio and Mississippi rivers to Mobile, and in writing to Sir William Johnson he declared that the country in and about the Illinois region would never be settled 'with any advantage to England' unless New Orleans were procured."

(Reading the footnote on page 141):

"April 15, 1768, Johnson MSS., Vol. XXV, No. 109. He affirmed that a settlement 'will never happen with any advantage to England until we can procure the
3568 Ideal Island of Orleans: * * * could we find passage for even small craft to go to the Sea, the Country of the Illinois would be worthy of attention, but had we the Island of Orleans, that country would in a very short time I believe be equal to any of our Colonies.' "

(Reading on page 142 of same volume):

" 'This commerce' he affirmed, 'cannot (I apprehend) be useful to Great Britain otherwise than as it furnishes a material to her Manufactures, but it will on the contrary be prejudicial to her in proportion as other Countries obtain that material from us without its coming here first; and whilst New Orleans is the only Port for Exportation of what goes down the Mississippi, no one will believe that that town will not be the market for Peltry or that those Restrictions, which are intended to secure the Exportation of that Commodity directly to G. Britain, can have any effect under such circumstances.' "

I find that Louis Kimball Mathews, who has written a book on "The Expansion of New England" that has been accepted as an acceptable work on history, declares that the work of William Vipond Pooley from which I quoted is an admirable study.

Q. Do you find any reference in Frederick J. Turner to Pooley?

3569 Mr. WILKERSON. Same objection.

A. I do, in the author's preface. (I read from the author's preface of Turner's Rise of The New West, which is the same work that has been referred to here by the government):

"I desire to express my cordial appreciation of the friendly criticism and assistance I have received from the editor, Professor Hart. To Professor Carl R. Fish, Professor A. A. Young, and Dr. U. P. Phillips, my colleagues, I am indebted for a critical reading of several chapters. I have drawn on the manuscript sources possessed by Dr. Phillips for information on many points of southern history. Several of the topics dealt with in the volume have been investigated by graduate students in my seminary; particularly I have profited by the papers of Professor Homer C. Hockett on the Missouri Compromise and the rise of Jacksonian democracy; of Mr. Royal B. Way, now instructor in history in Northwestern University, on internal improvements; and of Dr. W. V. Pooley and Mr. A. C. Boggess on the settlement of Illinois. Mr. S. J. Buck, my assistant in American history, prepared under my direction some of the maps, particularly those of congressional votes."

I have before me the map appearing on page 314 of Pooley, (For copy of said map see Appendix p. .....), to which my attention was called when I was asked on cross-examination (Trans., page 3139; Abst., 1240): "In view of what you have said about settlement following the rivers, what have you to say about the failure of settlers to go along the Mississippi?"

3571 Q. Your attention was called to the fact that the shaded portions of map containing six or more people per square mile, showed population as thus indicated on the Mississippi only to a point below Quincy and on the Illinois only to point below Lewiston, and you were asked about failure of settlers to go along Mississippi. What significance is to be drawn from the fact that population, as shown by that map, reached only to the points mentioned?

Mr. WILKERSON. Objected to because question has already been answered on cross.

A. It seems to me that the only significance that would have would be that the population settled along and was gradually working up rivers, but had only gotten up as far as map indicated at time map was drawn in 1830.

Mr. SCOTT. Q. Does it indicate how the population came into that country?

Mr. WILKERSON. Objected to as leading.

A. It would indicate that they came in from south and must have followed rivers in settlement previous to 1830.

Mr. WILKERSON. Move to strike out answer as conclusion.

Mr. Scott. Q. Can any significance be drawn from
3572 fact that population extended only to those points on river, and did not extend to present site of St. Paul, inconsistent with proposition that early settlements followed the rivers?

Mr. Wilkerson. Objected to as not proper re-direct, leading, and calling for conclusions of witness.

A. No, sir.

Mr. Scott. Why not?

Mr. Wilkerson. Same objection.

A. It was simply going up rivers and by this time had gotten only so far as map indicates.

Mr. Scott. Q. Referring to Schoolcraft, cross-examination, pages 3176, 3177 (Abst., 1250), the paragraph in which he says canal of eight or ten miles must fall far short of grand purpose, you were asked if he didn't mean canal of this length was needed to perfect communication for large boats. Is there anything in that portion indicating he meant canal of eight or ten miles was only required to perfect navigation for large boats at all seasons of year?

Mr. Wilkerson. Objected to; passage is in record; question is improper re-direct and calls for statement of witness' conclusion.

3573 A. His experience—perhaps I had better turn to the excerpt itself. His experience points out that he had to make a much longer portage at that time of year, so if it were to make a channel or water communication that would be desirable for any time of the year, he must have had that in mind, because his experience would show no such indication.

Mr. Wilkerson. Move to strike out answers as not responsive to question, and as statement of conclusion.

His experience was with light canoe. Reference was made to Carver's reliability in connection with Featherstonehaugh's statement that he found certain observations of Carver to be accurate, while Keating's observations as to same matter were inaccurate. As a historical critic would say Featherstonehaugh cannot be discredited because he stated that observations made by Carver as to natural features which Featherstonehaugh saw were correct.

Mr. Wilkerson. Objected to as leading and calling for a conclusion.

A. No.

Mr. Scott. Q. Some reference was made to Carver and

Bourne's statement as to Carver. What have you to say as to Carver's general standing?

Mr. WILKERSON. Objection as incompetent, irrelevant, immaterial and not proper re-direct.

3574 A. As stated in my examination the other day, Carver's book during the early period was open to criticism. Bourne has made an analysis of that and study of Bourne's criticism in that respect possibly will point out what weight should be placed on Carver.

Mr. SCOTT. Q. State in any way to get at it what weight should be placed on Carver.

Mr. WILKERSON. Same objection.

A. Carver's work is to be divided, part as plagiarized from various works and part of it is reliable, as Bourne rightly divides it in this study.

Q. Which portion is reliable?

Mr. WILKERSON. Same objection.

A. What is known as the Travels, Travels of himself and the Origin of the Indian tribes is reliable.

Statements in regard to natural features which Featherstonehaugh afterwards referred to appear in the Travels.

Mr. WILKERSON. Same objection.

Bourne, as authority for statement substantially that Carver was not accurate or reliable pointed out that book is divided in two main divisions; one the journal, the

3575 Travels; other part, Origin, Manners, Customs, Religions and Language of the Indians. Bourne makes careful study of portion of dealing with the Origins, pointing out that the work is largely work of plagiarism, taken from Charlevoix, Adair, La Hontan and different sources, pointing out what Schoolcraft pointed out at an earlier period. Bourne lays down test for second part on page 300 of Volume XI of the American Historical Review. (Reading): "To pronounce upon the work of this part of the book first-hand intimate knowledge of the field of observation is required." Next sentence is (reading): "This qualification William H. Keating, the scholarly and painstaking geologist and historian of Long's expedition to the source of St. Peter's river in 1823, possessed in a high degree." Next sentence is (reading): "The members of Long's expedition naturally gave Carver's account a more critical scrutiny under more favorable conditions than has been the case since or is likely to be in the future."

That sentence indicates Bourne did not know of Fea-
3576 therstonehaugh's trip because he says no one has had opportunity to scrutinize this before. But the point I wanted to call attention to was that Bourne lays down test that it would be necessary to make in order to test Carver's work. In this sentence, he points out that he could not make such a test.

"Turning now to the first part of the narrative proper of Carver's Travels, is it a genuine record of experience and did he write it, or was it written by another from his memoranda or oral recollections? So far as I can judge by literary evidence, I should reply that Carver was the source rather than the author of the narrative."

I believe I said he stated that he does not state exactly that he could not make the test. He does point out that his method of judging was by internal literary evidence, and to make true test of this he would have to be on the ground. In study of Bourne in which he says he cannot really make true test because he has not been on ground, it is to be noted that the only author he cites to overthrow Carver's work is this work of Keating's. Point that has been made and I
3577 make at this time is that Featherstonehaugh was on ground, having with him Carver and Keating, actually checking both up and he makes test Bourne says is necessary to make a true test and he finds, as I pointed out in direct, that Keating is surprisingly erroneous and Carver is accurate. He also points out in what respect that is proven, citing certain specific instances, and I think he makes the statement that he generally found Keating surprisingly erroneous. Schoolcraft makes further statement as to Carver's reliability. It is in this volume, page 293, same volume to which I have been referring (reading):

"Carver, who went from Boston to the Mississippi in the latter part of the 18th century, is not an author to glean much from. I, however, re-perused his volume
3578 carefully, and extracted notes. Some of the stories inserted in his work have thrown an air of discredit over it and caused the whole work to be regarded in rather an apocryphal light. I think there is internal evidence enough in his narrative to prove that he visited the chief portions of country described."

Schoolcraft thinks, so far as narrative is concerned, after

careful perusal, it is accurate; there is internal evidence that he made the journey.

3579 Mr. WILKERSON. Move to strike out that he expressed it as accurate as not in accordance with the extract.

Mr. SCOTT. All right, that may go out.

On page 291 of book referred to he says:

"The project, in the end, proved impracticable, and all that Carver was able to accomplish was a journey from Michilimackinac to the Mississippi by the Fox and Wisconsin river route, a voyage up the Saint Peter's or Minnesota river, and, upon his return, the exploration of northern Wisconsin and the north shore of Lake Superior."

Have checked up statement in Pooley, about which was asked on 3202 of record, that Peoria, oldest town in this part of state, had been destroyed in closing years of eighteenth century.

Q. What have you found?

Mr. WILKERSON. Objected as not proper re-direct, incompetent, irrelevant and immaterial.

A. I found that book which has been used by the State in this case, Drown's Peoria, refers to this point on page 57.

"In 1818 Illinois was admitted into the Union. This was the year before our present population dates; prior to that period the inhabitants consisted, as I have before

3580 said, of the native tribe of 'Peoriaca,' or Peorias, Indian traders, hunters, idlers, &c. (for every community has more or less of this class, who live upon the earnings of others), who from that happy faculty peculiar to the Canadian French, of adapting themselves to their associates, continued to live together at this place till within a year or two of the present population, with the exception of a time about the year 1781, or close of the revolutionary war. About that time they became alarmed for their safety and abandoned this place, and took up their residence in the French settlements in Canada, and on the Mississippi. Peace having been concluded between the contending parties for our Independence, the danger they apprehended being over, or rather their fears allayed, they returned two or three years afterward to their old places and friends, and resided here until 1812."

In American State Papers, Public Lands, Volume 3, page 477, Document 327, of 16th Congress, Second Session, is a re-

port in which I find reference to this subject matter. (I read from title page):

"American State Papers, Documents, Legislative and Executive, of the Congress of the United States, From the First Session of the Fourteenth to the First Session of the Eighteenth Congress, Inclusive: Commencing December 4, 1815, and Ending May 27, 1824. Selected and Edited, Under the Authority of Congress, by Walter Lowrie, Secretary of the Senate, and Walter S. Franklin, Clerk of the House of Representatives. Volume Washington: Published by Gales and Seaton, 1834."

3581

Report is headed "Claims to Lots in the Village of Peoria, Illinois, Communicated to the Senate, January 10, 1821," headed "Land Office at Edwardsville, November 10, 1820," addressed to "William H. Crawford, Secretary of the Treasury of the U. S."

(Reading):

"The inhabitants of Peoria consisted generally of Indian traders, hunters, and voyagers, and had formed a link of connexion between the French residing on the waters of the great lakes and the Mississippi river. From that happy faculty of adapting themselves to their situation and associates, for which the French are so remarkable, the inhabitants of Peoria lived generally in harmony with their savage neighbors. It would seem, however, that, about the year 1781, they were induced to abandon the village from the apprehension of Indian hostility; but soon after the peace of 1783, they again returned, and continued to reside there until the autumn of the year 1812, when they were forcibly removed from it, and the place destroyed by a Captain Craig, of the Illinois militia, on the ground, as it was said, that he and his company of militia were fired on in the night while at anchor in the boats before the village, by Indians, with whom the inhabitants were suspected by Craig to be too intimate and friendly."

3582

Was mistaken when I referred to a Mr. McCarty at page 3222 of the record and gave statement as to who he was, that he was in University of Iowa, took his work there and wrote this book there. Was thinking of man by name of Daniel Clark when identified him with University of Iowa; was mistaken in man. Have since learned McCarty was the man who started this work in connection with Harvard University and has since worked upon it, believe, in libraries of this city

and other libraries in northwest. Think was not ever connected with University of Iowa. Was earlier connected with Iowa College at Grinnell.

3583 As authority for statement made on page 3487: "Certainly, in accordance with my knowledge the Desplaines at some times of the year would be a mere brook," I find on page 115 of transcript (Abst., 50), of this case an extract from St. Cosme (reading):

"They had already made two leagues portage, and there were still four to make to Monjolly, which we made in three days and arrived on the 8th of the month. From Isla a la Cache to Monjolly is the space of seven leagues. You must always make a portage, there being no water in the river except in the spring. All along this river is very agreeable. * * *

On leaving Monjolly we made about two leagues to another little portage of about a quarter of a league. As one of our men, named Charbonneau, had killed several turkeys and geese in the morning and a deer, we did well to give somewhat of a treat to our people and let them rest for a day.

On the 10th we made the little portage and found
3584 half a league of water, and then two men towed the canoe for a league; the rest marched on land, each with his pack, and we embarked for the space of a league and a half and stopped for the night at a little portage, five or six arpens off.

On the 11th, after making the little portage, we came to the river Tealike, which is the real river of the Illinois; that which we had descended being only a branch. * * *

From Chicagvv to the Fort they reckon thirty leagues. Here navigation begins, which continues uninterrupted to the Fort of the Permavevvi, where the Indians are now. We arrived there on the 19th of November."

Should not think St. Cosme meant steamboat navigation when referring to head of navigation. On page 344 of transcript is excerpt taken from Lyman E. Cooley's report.
3585 "The river itself except in floods, is very shallow, being often reduced in dry seasons to a mere brow, discharging less than 1,000 cubic feet of water per minute." That is my mistake, is not report of Cooley, but report of James H. Wilson, Lieutenant Colonel 35th Infantry. Next reference is

page 711 of transcript (Abst., 295), La Salle's account, which is as follows:

"That might perhaps happen in the spring time, but not in the summer, because there is no water at all in the river as far down as Fort St. Louis, where the navigation of the Illinois river begins at this season and extends as far as the sea."

On page 712 of same account is following:

"Again navigation would be for only a short time, at most for 15 or 20 days in the year, after which there is no longer any water."

3586 Have no further reference on that point. Have examined Frederick J. Turner's Rise of the New West having in mind question as to who Semple, McCarty and Pooley were, whose testimony I referred to in connection with my statement that the rivers were used by early settlers and as to the weight to be given to those authorities.

Q. You were asked (Trans. 3238, Abst., 1265) whether you saw any significance in the title of the book. Did you find any statement in Turner himself indicating what he meant by that title?

Mr. WILKERSON. Objected to as not proper re-direct.

A. On page 67, Chapter 5 begins:

"The rise of the new west was the most significant fact in American history in the years immediately following the war of 1812. Ever since the beginning of colonization on the Atlantic coast a frontier of settlement had advanced, cutting into the forest, pushing back the Indian, and steadily widening the area of civilization in its rear. There had been a west even in early colonial days; but then it lay close to the coast. By the
3587 middle of the eighteenth century the west was to be found beyond tide-water, advancing towards the Alleghany Mountains. When this barrier was crossed and the lands on the other side of the mountains were won, in the days of the Revolution, a new and greater west, more influential on the nation's destiny, was created.

The men of the 'Western Waters' or the 'Western World,' as they loved to call themselves, developed under conditions of separation from the older settlements and from Europe."

"Western Waters" and "Western World" is in quotation marks. In my judgment, following references throw light upon use of the waters by the settlers (reading p. 74):

"The maps of the United States census, giving the

distribution of population of 1810, 1820 and 1830, exhibit clearly the effects of the defeat of the Indians, and show
3588 the areas that were occupied in these years. In 1810 settlement beyond the mountains was almost limited to a zone along the Ohio river and its tributaries, the Cumberland and the Tennessee. In the southwest, the vicinity of Mobile showed sparse settlement, chiefly survivals of the Spanish and English occupation; and, along the fluvial lands of the eastern bank of the lower Mississippi, in the Natchez region as well as in the old Province of Louisiana there was a considerable area occupied by planters.

By 1820 the effects of the War of 1812 and the rising tide of westward migration became manifest. Pioneers spread along the river courses of the northwest well up to the Indian boundary. The zone of settlement along the Ohio ascended the Missouri, in the rush to the Boone's Lick country, towards the centre of the present state. From the settlements of middle Tennessee a pioneer farming area reached southward to connect with the settlements of Mobile, and the latter became conterminus with those of the lower Mississippi.

By 1830 large portions of these Indian lands, which were ceded between 1817 and 1829, received the same type of colonization. The unoccupied lands in Indiana and Illinois were prairie country, then deemed unsuited for settlement because of the lack of wood and drinking
3589 water. It was the hard-woods that had been taken up in the northwest, and, for the most part, the tracts a little back from the unhealthful bottom lands, but in close proximity to the rivers, which were the only means of transportation before the building of good roads. A new island of settlement appeared in the northwestern portion of Illinois and the adjacent regions of Wisconsin and Iowa, due to the opening of the lead mines. Along the Missouri Valley and in the Gulf region the areas possessed in 1820 increased in density of population. Georgia spread her settlers into the Indian lands, which she had so recently secured by threatening a rupture with the United States."

At place in book to which my attention is called, page 70 of book, opposite page 70, are two maps. Legend on map at left hand sides states "Distribution of Population, 1820." (For copy of said map see Appendix, page .....) Blank

space represents unoccupied areas, lighter colored region would be from two to eighteen inhabitants to square mile, darker color indicates from eighteen to over ninety inhabitants to square mile. In state of Illinois popula-
3590 tion is indicated on map by lighter color, which indicates there were two to eighteen inhabitants to square mile in southern part of state, along Ohio, Mississippi and Wabash. Map shows above that region I have indicated no population; unoccupied area. Indicates in Northern Illinois Sacs and Fox Indians. That would be north of Illinois river. East of Illinois river would be Pottawattomie Indians. Lighter shade, indicating from two to eighteen
3591 inhabitants to square mile, extends up Mississippi to fortieth parallel. Shows at junction of Missouri and Mississippi, the heavier shade, that is a population of from eighteen to over ninety inhabitants. It is a little space indicated just at juncture of rivers. Legend of map on right hand side of same page is "Distribution of Population, 1830." (For copy of said map see Appendix, page . .) Remainder of table is same as one on right hand; white space for unoccupied spaces, etc. Population of Illinois in 1830 is shown by lighter colors in entire area where population exists; is given further up rivers; a little further up the Mississippi and the Illinois. It also shows slight population in extreme northwestern corner of Illinois. Rest of Illinois which would be northern part and eastern part or prairie land and upper part of Illinois river would be unoccupied area. Chicago is included in unoccupied area. Illinois river two-fifths of way from mouth. The map of 1820 shows population just started up from mouth of Illinois It is at mouth. Map of 1830 does not show heavier shaded population at juncture of Missouri and Mississippi rivers.

Mr. WILKERSON. That is plainly a mistake. It occurs
3593 to me that failure to put heavy shaded portion there in vicinity of St. Louis was undoubtedly error of map-maker; we all know St. Louis at that time was considerable city; at juncture of Missouri and Mississippi. Ought to come where they have it on other map; evidently did not put in that little space.

Mr. SCOTT. By inference would think same thing.

The Indians on the 1830 map were located as they are on 1820 map.

3594 Page 80 of Turner's book throws light on the use of rivers in early settlement and as to manner in which the

settlers from the north as distinguished from those from the south, settlers from New York, New England, etc., came into this part of the country (reading):

"The routes of travel to the western country were numerous. Prior to the opening of the Erie Canal the New England element either passed along the Mohawk and the Genesee turnpike to Lake Erie, or crossed the Hudson and followed the line of the Catskill turnpike to the headwaters of the Allegheny, or, by way of Boston, took ship to New York, Philadelphia, or Baltimore, in order to follow a more southerly route. In Pennsylvania the principal route was the old road which, in a general way, followed the line that Forbes had cut in the French and Indian War from Philadelphia to Pittsburg by way of Lancaster and Bedford. By this time the road had been made a turnpike through a large portion of its course. From Baltimore the Traveller followed a turnpike to Cumberland, on the Potomac, where began the old National Road across the mountains to Wheeling, on the Ohio, with branches leading to Pittsburg. This became one of the great arteries of western
3595 migration and commerce, connecting, as it did at its eastern end, with the Shenandoah Valley, and thus affording access to the Ohio for large areas of Virginia. Other roads lay through the passes of the Alleghanies, easily reached from the divide between the waters of North Carolina and of West Virginia. Saluda Gap, in northwestern South Carolina, led the way to the great valley of eastern Tennessee. In Tennessee and Kentucky many routes passed to the Ohio in the region of Cincinnati or Louisville.

When the settler arrived at the waters of the Ohio, he either took a steamboat or placed his possessions on a flatboat, or ark, and floated down the river to his destination. From the upper waters of the Allegheny many emigrants took advantage of the lumber-rafts, which were constructed from the pine forests of southwestern New York, to float to the Ohio with themeselves and their belongings. With the advent of the steamboat these older modes of navigation were, to a considerable extent, superseded. But navigation on the Great Lakes had not sufficiently advanced to afford opportunity for any considerable movement of settlement, by this route, beyond Lake Erie."

Have completed passage. New chapter begins at page 85. (Reading first sentence of that chapter into record):

"Arrived at the nearest point to his destination on the Ohio, the emigrant either cut out a road to his new home or pushed up some tributary of that river in a keel-boat."

In "The Expansion of New England," written by Lois Kimball Mathews, instructor of history in Vassar College, I have a reference as to how New England settlers or colonists came to Illinois. (Reading from title page):

"The expansion of New England. The Spread of New England Settlement and Institutions to the Mississippi River. 1620-1865. By Lois Kimball Mathews, Instructor in History in Vassar College. Boston and New York. Houghton Mifflin Company. The Riverside Press, Cambridge, 1909."

Lois Kimball Mathews is on faculty of Vassar College and has written this work which has been favorably referred to by historians. Have two or three references. On page 206 read following (reading):

"The settlement of Illinois presents many features in common with that of its neighbor, Indiana. Settlers had worked up into Illinois from the South before 1812, as has been said; in 1818, when the territory became a state, only the southern half had as yet been occupied, and that portion wholly by representatives of Virginia,
3597 Kentucky and the Carolinas, whose influence donimated the territorial stage."

On page 209 have another reference. (Reading):

"A strong sectional antagonism sprang up, due to the entire misunderstanding existing between the northern and southern portions of the state. Southereners opposed the Illinois and Michigan Canal because of the fear that if completed it would 'flood the state with Yankees'; the Northerners resented the attempt to force them to help pay a heavy state debt which had been recklessly incurred before their arrival."

On page 213 I have following reference (reading):

"The Maine colony which settled at Rockton, Winnebago County, sent Ira Hersey in 1837 as their representative to visit Illinois and select a good tract of land. He was greatly impressed with the possibilities of the West, and on his return fired his neighbors with an especial enthusiasm for the beautiful Rock River val-

ley. The colony was formed, and with Mr. Hersey as their leader, they departed. They went from Portland to Boston; then to Providence by rail; by water to New York and Philadelphia; again by rail across Pennsylvania to Pittsburg, where they took passage down the Ohio River. In Cincinnati they purchased provisions and wagons, and continuing their way passed up the Mississippi, and up the Illinois as far as Ottawa, where
3958 they bought oxen and cows. Then they finished their journey overland to their new home. In the same year was formed their Congregational church. There were at least twenty-two colonies in Illinois, all of which had their origin in New England or in New York, most of them planted between 1830 and 1840."

Returning to Turner, on page 98, reading reference throwing light upon question of use of rivers by early settlers. (Reading):

"Only a few villages lay along the Mississippi below St. Louis until the traveller reached New Orleans, the emporium of the whole Mississippi Valley. As yet the direct effect of the Erie Canal was chiefly limited to the state of New York. The great bulk of western exports passed down the tributaries of the Mississippi to this city, which was, therefore, the centre of foreign exports for the valley as well as the port from which the coastwise trade in the products of the whole interior departed. In 1830 its population was nearly fifty thousand."

On page 77 of Turner find following indicating extent of New England population in Illinois in 1820 and 1830 (reading):

"Illinois in this period had but a sprinkling of New Englanders, engaged in business in the little towns."

3599 Legend on may my attention is called to in this same work between pages 226 and 227 is "Highways and Waterways in the United States, 1826-1830," based on H. S. Tanner's map of 1825. (For copy of said map see Appendix, page .....) Green straight line indicates canals; broken green, canals in progress; red line, roads; broken red line, roads in progress. Map does not indicate any roads north of line leading from mouth of Illinois river to point where Wabash becomes state line of Illinois on east. Does not indicate any roads between Lake Erie and Lake Huron and northern Illinois. As indicated by map, Cleveland is farthest road to west which touches Lake Erie. Road at St.

Louis and one running up to Indianapolis is nearest road of complete road highways as indicated on map to the point marked Fort Dearborn, and in parenthesis Chicago.

3600 The latter are, the road running up to Indianapolis from south is broken line. Old Cumberland road, which is continuous to Washington and other eastern cities connects with road leading to Indianapolis. There is no highway or waterway of the kind referred to in table, Canals, Canals in Progress, Roads, or Roads in Progress, leading to any point on Lake Michigan as shown on map. My attention is called to Gilbert Imlay, on title page of which volume appears, among other things, "Illustrated with Correct Maps of the Western Territory of North America; of the State of Kentucky, as divided into Counties, from Actual Surveys by Elihu Barker; a Map of the Tennessee Government; and a Plan of the Rapids of the Ohio," my attention being especially directed to the map of western part of the Territories belonging to United States of America, drawn from best authorities, engraved for Imlay's topographical description of that country, appearing in front of that volume (For copy of said map see Appendix, page .....); and to the lower portion of Lake Michigan and relation there shown of the Chicago river and Desplaines river to each other.

3601 I am sufficiently familiar with the topography of this country to say whether or not it is an accurate map of that particular region and I judge it is not an accurate

3602 map of that region. What I would judge to be Desplaines river has its source here south of South Branch of Chicago river, and it should be up along west side of Lake Michigan rising in southern part of what is now Wisconsin. Know general course of St. Joseph river in general way. As I understand, map is not correct in showing it as running east and then northeasterly, and terminating at point west of and little above Lake St. Clair. It rises too far north. St. Joseph runs in general direction south. There is something

3603 in Schoolcraft which throws light upon whether or not the inference was when Schoolcraft and Kennedy abandoned the river at a certain point, to the effect that there was an obstruction at Vermillion river on account of which they abandoned it, which inference indicated nothing as to character of the Illinois above Vermillion river.

Mr. Scott. Am referring to something already in record; same thing you referred to, Mr. Wilkerson, in cross.

Mr. Wilkerson. Objected to as calling for conclusion of witness.

Page 2949 of transcript is reference to Schoolcraft's travels on page 318 of Schoolcraft, in which occurs following (reading):

"The rapids commence half a mile above, which makes it evident that the Illinois is greatly diminished in size above the junction of the Vermillion. The water
3604 at once becomes shallow, and the rock, which is sandstone, presents itself first in broken masses, and soon after flooring the bed of the river. When our canoe would no longer float without rubbing against the rocks, we got out and made a short portage, the empty canoe being still guided along by men walking in the stream on each side. When we again embarked, we could, however, go but a short distance. Another portage was necessary. In short, we could no longer proceed in our water craft. Nothing but a series of rapids appeared above as far as we would explore. The water was scarcely eight or ten inches deep in any place, and often less than four."

Sentence following is (reading):

"With great exertions, we had proceeded two or three miles above the Vermillion, and about four o'clock we encamped near a remarkable isolated hill, called by French voyageurs Le Rocher, and Rock Fort."

Significance I draw from what have read is that he had gone as far as could with canoe, sent exploring expeditions up further when found could go no further and discovered could make no headway and had to give up journey by water and go overland. He was using a canoe. These canoes
3605 were often carried around obstructions as I understand.
3606 Have been impressed with fact that a very thorough examination has been made of all sources throwing light upon question of use made of this river. In my opinion as historical critic, general conclusions expressed by any historical writers as to use of this route prior to beginning of this litigation and opinions expressed prior to beginning of litigation would not be accepted as against deduction to be drawn by any intelligent reader and trained mind, from detailed evidence in this case.

Mr. Corneua. Objected to as incompetent, irrelevant, immaterial re-direct and that witness has not qualified as an expert.

Mr. Cressy. On further ground that no foundation been laid for question, and that question itself is leading.

3607 Mr. SCOTT. Q. You were asked this question on cross, referring to your classification of persons speaking of this river, including Charlevoix in a certain class, "Did you have in mind at the time you made this classification that one reading your analysis there would give greater weight to Charlevoix's characterization of the Desplaines as a mere brook than they would have given it if you had put him in the third or fourth class where he belonged." Will ask you, whether, in your judgment, if it appeared that Dr. Thwaites on direct in this case, "To be more specific, these contemporary documents may in such a case as is before us be letters, diaries, journals, or memoranda, written by men who had traversed the Chicago-Desplaines fur trade route; or books written or printed by them about it. This is what we call primary original material, and under this head may be placed such documents or writings as books by Marquette, La Salle, St. Cosme, Charlevoix, Heward, Schoolcraft and others." I ask if in your judgment, if Dr. Thwaites so testified it would be fair inference or just imputation upon him that he placed Charlevoix in the class of these who had used Chicago-Desplaines fur trade route in order that greater weight should be given to his characterization of Desplaines than would have been given if it had been put in class of those who had not used Desplaines river? I ask you that as historical critic.

3608 Mr. CORNEAU. Objected to as calling upon witness for conclusion which is not one of historical nature, but one courts will have to determine. Further that there is no foundation for question in record and that it is leading.

A. Why, I should think not.

Mr. SCOTT. Q. Referring to Long's statement that there were riffles and rapids in Desplaines which appeared only at low water, that it was a chain of stagnant pools, that in dryest seasons portage was seldom more than three miles, that there were formidable rapids at mouth of Vermillion utterably impassible for boats except in high water. Assuming there was fall of more than sixty feet in Desplaines river between Romeo and mouth of river, distance of about twenty miles, in which there were rapids at all seasons of year far more formidable than those at the Vermillion at any season of year; assume from other evidence it appears that portages from Chicago to below Ottawa were at times necessary, what would you say as to Long, as to whether or not

he was an accurate, careful observer, basing your con-
3609 clusion upon these statements?

3610 Mr. CORNEAU. Objected to as irrelevant, incompetent and immaterial; that its subject matter is not one for expert testimony; that there is no foundation for first part of question in record, or for any part of question and that it incorrectly states what record shows.

Mr. SCOTT. Counsel then asks counsel for government to point out where it is incorrect.

Mr. CRESSY. Will say question says report states there are rapids at mouth of Vermillion passable only in times of high water. Report states "At the mouth of the Vermillion there are rapids, perceivable only in the lower stages of winter."

Mr. SCOTT. I did not refer to report; I said statement of Long in reference to Vermillion, which is at page 214 of Expedition to the Source of the St. Peter's, where he says: "The most formidable obstructions of this nature are the rapids situated at the confluence of the Vermillion which are utterly impassible for boats except in times of flood." If there are no further corrections, he may answer question.

3611 Mr. CRESSY. Let objections stand as put.

A. Should judge he was an inaccurate observer.

3612 *Re-cross Examination by Mr. Wilkerson.*

In my testimony have had in mind date of Perrault's trip to Cahokia. Believe it was in 1783. 1782 is not my recollection. 1782 or 1783, yes. When question was asked me
3613 by Mr. Scott on page 3544, "Referring now to page 3097 of the cross-examination, were you asked in the examination concerning the editorial in the St. Louis paper, and with special reference to Perrault being at Cahokia and French traders being there, in regard to the inference to be drawn as to trade by way of the Illinois and the Lakes," and when I answered his next question as to whether there was anything to throw light on the course the trade of the French from Cahokia and vicinity took during period in question, do not know as I fixed it at any definite short period. As to whether I had in mind the period from 1782 to 1783, the time of Perrault's trip to Cahokia, and 1817 to 1819, the time when editorial was written, will say I do not know that I did fix them definitely. Had in mind what sources would throw light on movement of trade during general period which we had been dis-

cussing just before. Do not know whether definitely thought of exact dates Perrault was in Cahokia and editorial in
3614 St. Louis paper, or not. Had in mind whole general period when said had two or three references on that point; some of references were from earlier period than 1783; most of them were. As to whether that included period from 1782 to 1817, will say I do not know that I fixed period definitely in my mind. Was reading those extracts to throw light upon general movement of trade during that general period. Had made investigation of that subject and read those extracts for purpose of throwing light on course of trade from Cahokia and vicinity during period generally. Have fixed time when Du Pratz was
3615 in Louisiana. He says in preface he lived in colony in Louisiana until 1734; that he kept in touch with colony until 1757, time of writing book. First French edition was published either in 1757 or 1758. He was in Louisiana sixteen years, I believe, until 1734. In my opinion there is nothing inconsistent in quotation from Du Pratz, appearing at bottom of page 3544, with Perrault's statement that he found Canadian traders in Cahokia in 1782. Have looked at map in volume of Du Pratz I produced. Think Du Pratz had in mind Miami river when he spoke of route traveled by people
3616 coming to Illinois river points. Portion of map attention is directed to, has marked at the place between Chicago and Desplaines, the words "Carrying Place," in same way in which words "Carrying Place" are indicated upon other rivers, Ohio and river of the Miami; word "carrying place," being in italics and being little fine broken line on map. See nothing in this extract to indicate that Du Pratz had in mind at all this Desplaines-Illinois routes as one of routes that was traveled by people coming down into this part of country. Map in book indicates there was car-
3617 rying place at point indicated. My view as historical critic of words "carrying place," is that they indicate that map maker thought there was a route for trade. Don't know as would necessarily mean route of trade; would mean a passage; might or might not be route of trade; route that was used by somebody or something. Understood Ouiatanon, place referred to in first sentence on page 497 of Imlay's America, 1797 edition (Trans., 3546), being passage from Hutch-
3618 ins' Topographical Description of Virginia, is on Wabash river, as stated there. Located place other day.

Book from which got information was book of Chicago Historical Library, which told me something of general location of it. If you should say it was forty miles above Vincennes, don't know as would want to fix it from memory; don't know just where it is. Do not see exactly why location of that place would have anything to do with interpretation to be placed upon that passage, since it was along the Wabash and since it indicates that trade moved down that general route from Canada. When was speaking of trade conditions in reference to time of Benton editorial in 1817 or 1819 and Perrault's trip to Cahokia in 1782, I found this excerpt in
3619 Hutchins' Topographical description. This would throw light on period of which Hutchins was writing; that would be an earlier period than 1819, time of Benton's editorial as to extent of trade down Illinois river in 1817, or such period prior thereto as Benton might have had in mind, remembering date St. Louis was established was 1764. Hutchins was published in 1778. We know Hutchins lived in Illinois in years just previous to 1778, which would throw some light on question of when he collected information upon which description was based. Lived in Illinois previous to 1770 or 1771. Don't remember date exactly he left Illinois. Possibly left that part of country shortly after 1770. Don't remember
3020 that fact as to just when he left Illinois was brought out. Would probably throw light with reference to trade conditions prior and about that time; time of which Hutchins wrote. In the reference on page 3547 of record to Coxe's Carolana, I understood term Carolana refers to large area, including this whole section of Mississippi valley. Cannot from my notes here fix boundaries of territory with reference to which Coxe was referring to by term Carolana; remember he fixes boundary. If can have volume think could give Coxe's boundaries. As he points out, "it is 31 degrees on the south, 36 degrees north, and in longitude from the western or Atlantic Ocean unto Mexico, now in possession of the Spaniards, which is in a direct line above one thousand miles, and where not inhabited by them, unto the South Sea." Original
3621 name "Carolana" came from the King of France, later, when it came in charge of England, name was given to country in honor of Charles, King of England, Coxe points out that Carolana and the Carolinas are two distinct, though bordering provinces. Am not sure concerning history
3622 of Province of Carolana. Thought Coxe was in this general valley, Carolana. Think was in this country in

1698; noticed in print other day some place, 1598, probably misprint, as he was physician to King Charles Second, I believe. Notes taken from this expedition was one
3623 source of his information. In investigation of sources of information on which book was based, to determine degree of credibility to be given book, ascertained notes taken of trip was one source of information. Book was written by man named Coxe. He states in book was based on notes taken by Dr. Coxe. Would not want to state positively he was not in country at all, the Coxe who wrote book. Man who wrote book, Coxe, man who made notes on which book was based, is man spoken of as having made this expedition. Not sure just exactly where expedition went; into Mississippi valley this says. From note in his book could not make statement Dr. Coxe was party to that expedition. Some place have seen he was; cannot cite exact authority. Thought Dr. Coxe accompanied expedition; but do not
3624 know. Do not know that Dr. Coxe drew a memorial to King in 1699, and that this book cited is substantially a reproduction of that memorial; it may be. Have no knowledge on that subject. Am not sure Coxe expedition ever got out of present site of New Orleans; says they sailed up Mississippi. Don't know how far they sailed. Possibly critical analysis of book would show Dr. Coxe was never in part of country described in book, and that expedition never got above present site of New Orleans. Have made no such critical analysis. Passage cited from Coxe's Carolana is quotation from Coxe; critical analysis would have to be made of book to see if was stating facts cor-
3625 rectly or not. Don't know if there is anything in his statement of fact that would justify forming conclusion about trade in this part of country taken alone because don't know whether he actually passed into this country. Presume he would know general route. Would not think would know in detail but probably would know of general route that was taken. Have not seen notes of party in command of vessel used on expedition referred to. Passage I put in record on page 3548 (Abst., 1342), refers to period previous to 1722; whether would refer to period prior to 1699 would not know until had investigated further.

Mr. WILKERSON. Am taking up Carter now.

Whereupon, upon the request of counsel for defendant, the witness read into record the following excerpts (note 30 on page 87):

"Gordon's 'Journal down the Ohio,' 1766, M. S., in
3626 Hist. Soc. Pa. Library, Lieutenant Geo. Phyn to Johnson, April 15, 1768, John MSS., vol. XXV, No. 109, Morgan complained in 1767 that the great number of French hunters who went up the Ohio from New Orleans had almost exterminated the buffalo. Morgan to Baynton and Wharton, December 10, 1767, Morgan's MS. letter book."

Note 47 on page 92 (reading):

"Gage to Shelburne, February 22, 1767, B. T. Papers (Hist. Soc. Pa.) Vol. XXVII, Lieutenant-Governor Carlton of Canada complained that owing to the restraints on the fur trade in that colony, all of the trade was going down the Mississippi. Carlton to Johnson, March 27, 1767, Mich. Pioneer and Hist. Colls. X, 222-224."

Pursuant to request by counsel for complainant I read first paragraph of prize essay by Clarence Edwin Carter, entitled "The Illinois Country," to which he directs my attention:

"In the present study my researches have been directed toward the discovery of the legal, political, and economic relations between Great Britain and the Illi-
3627 nois colony, and the political events in Illinois which illustrate some of those general relations. In addition to the Illinois settlement, the great West which was ceded to England in 1763, included other colonies of comparatively equal importance, the chief of which was Detroit. Whatever general principles, therefore, are ascertained with reference to the relations between the home government and the Illinois French apply equally to the whole West. In the discussion of the illustrative events, however, I have followed their course in Illinois alone."

Have made no further exhaustive investigation with reference to trade conditions and the course of commerce in
3628 territory along Illinois river and above St. Louis prior to 1763. I quoted from chapter five of Carter, who speaks of trade conditions in Illinois country. Du Pratz speaks of territory of Louisiana and coming by way of the Miamis, which would be coming by road east of Illinois country, to Louisiana. Without regard to route, passage does not necessarily show that there was trade between that country and Canada. He speaks of them coming by way of the Wabash; then he says: "From thence the Canadians go down that

river, into the Wabache, and at last the Mississippi, which brings them to New Orleans, the capital of Louisiana." The passage from page 182 of Du Pratz, on page 3545 of record, (Abst., 1341), beginning:

"In those countries there is a river, which takes its name from the Illinois. It was by this river that the first traveler came from Canada into the Mississippi. Such as come from Canada, and have business only on the Illinois, pass that way yet; but such as want to go directly to the sea, go down the river of the Miamie into the Wabache, or Ohio and from thence into the Missis-

3629 sippi,"

would indicate that some came from Canada and had business in Illinois. Would probably indicate that during period about which Du Pratz was writing and prior to 1763, the commencing of period which Carter discussed, there was some trade between Canada and Illinois country. He says, "Such as come from Canada and have business only on the Illinois, pass that way yet." Turning to page 3550 of record, the first passage from Carter, from page 11, my attention is directed to first sentence of second paragraph of preface as follows: "In chapters I and III, both of which are in a sense introductory, no serious attempt has been made at original investigation." In view of that statement in preface would give considerable weight to passage from chapter one which I read into record in the face of the

3630 statement in preface, because he is simply stating the conditions there, based on general knowledge, written no doubt after making original study. Am not sure concerning general conditions he found existing. He cites not unused manuscript as he says, he used in chapters 4 and 7, but Winsor, who is a critical authority. After reading and carefully analyzing chapter would state it in his language that all of fur trade in lower Illinois region went to Louisiana. Am referring to page 11 (reading): "All of the trade of the upper Mississippi valley was carried on through New Orleans, and the southern colony often owed its existence to the large supplies of flour and pork sent down the river." It don't say particularly fur trade, don't particularly specify, but says, "All of the trade of the upper Mississippi valley," which, presume, would include fur trade. Last part of it, "Although the inhabitants occupied themselves chiefly with hunting

3631 and with trading with the Indians, they yet raised a considerable amount of corn, wheat, and various kinds

of fruit, which, together with cattle and hogs they frequently shipped to the New Orleans market" would mean that they sent the rest of their trade down that way, also, other than fur, which you have specified. Have read first, the sentence of second paragraph of Carter before I quoted that passage as authority. In this prize essay of Carter's he aims to state stress of this work, and that part which is based on research from hitherto unused manuscripts, manuscript material, is that part between chapters four and seven inclusive, and that the other part is not based upon hitherto unused manuscripts, but no doubt it is a careful piece of work. In general way am familiar enough with general historical situation at that time to
3632 reach conclusion as historical critic as to why Carter carved out epoch from 1763 to 1774 as a separate historical period.Do not know as would say am familiar with detailed history of the country. Would say he tried to make separate period from 1763 to 1774 of Illinois country because in 1763 this territory concerning which he writes was turned over to the English; political sovereignty changed. They also wanted to change economic dependency or relations, so that in that period there commences competition between French and English that was not found before. Had in mind, when spoke of economic situation, that the French had been carrying on the trade and had almost complete monopoly of this whole fur region, including not only Illinois but whole Mississippi Valley; but when this territory passed into hands of English they wanted to get not only political dependence but economic
3633 dependence on England. Judging from specific attempt as brought out in this study, it was to give such companies as Morgan represented, and two or three others located at Pittsburg and Philadelphia, and that would be part of continent they would be trying to make the Illinois dependent upon. I know there were other companies they were interested in diverting business to; know in general way that this whole western part of country, by which I mean territory between Alleghanies and Mississippi, was dependent upon Mississippi valley as an outlet. England and United States tried to change that, after 1783. By that I mean direction of trade. That was reason United States purchased Louisiana territory in 1805; so as to control
3634 Mississippi river and its mouth. Jefferson said country that owned New Orleans was a natural enemy of this country. Know there was some references

I have found to companies that carried on trade with Montreal and Quebec, points mentioned by you when asking me if trade conditions there had anything to do with what was done during period from 1763 to 1774, looking toward modification of economic conditions. In getting at significance and weight to be given statements of Carter upon point cited for, I simply cited him as an authority, a man who from
3635 study of original manuscript, states his conclusions and cites his authorities. Would cite him as to 1763 to 1774. Believe have cited other statements he made in connection with that period. Most of authorities he cites I have not seen because they are in original manuscript, unpublished, and I did not get them. He made 1774 end of epoch because 1774 was beginning of American Revolution and trouble with Colonies, between them and mother country, and eco-
3636 nomic conditions between 1774 and 1776 would be somewhat disturbed.

Q. Are we accustomed to fix date of American Revolution as 1774?

Mr. SCOTT. Objected to; he did not say that.

A. Certainly no historian I know of would set arbitrary date as commencement of that trouble. In one course I had we took the preliminaries of American Revolution and went back as early as 1761. It had occurred to me that reason Carter named 1774 as end of this epoch was that Quebec Act was passed in 1774. That was probably one of things that entered in. It wasn't wholly trade act that brought about passage of Quebec Act of 1774. Don't know why you
3637 called it Quebec Act. I know act referred to as such. Have had that act in mind, thought of it in connection with this subject. Don't know as thought of it as being reason for doubting truth of Carter's statement. Don't know whether I read paragraph at conclusion of Carter's Essay:

> "In 1774 came the opportunity to make a final disposition of the Illinois French. During the period under consideration events had so shaped themselves in the neighboring colony of Canada that the ministry was under the necessity of reorganizing the government of that province. The proclamation of 1763 had extended English law to Canada with the result that the French inhabitants were subjected to many hardships. Their grievances were now to be taken into consideration by the government, and as the solution of the western and Canadian problems seemed to be closely connected,

the two questions were taken up at the same time. General Gage was summoned home in 1773, and was directed to bring with him every paper relating to the West which might tend to 'explain as well the causes as the effects' of the abuses and disorders in Illinois. As a
3638 result of his recommendations and of the investigations of the ministry the Quebec Act of 1774 was enacted, according to the provisions of which the entire Northwest was included within the limits of the province of Quebec."

Think I knew all facts stated there. Shows what Carter had in mind in fixing end of epoch about which he wrote was the distinctively English period, because after 1774 that territory was included, the territory of Illinois was attached to Canada. Think I have not read General Gage's report of March 20, 1762. My attention is directed to General Gage's re-
3639 port of the State of the Government of Montreal, March 20, 1762, found in volume "Canadian Archives, Documents Relating to The Constitutional, History of Canada, 1759-1791, Selected and Edited with Notes by Adam Shortt, Professor Political Science Queen's University and Arthur G. Doughty, Dominion Archivist, Printed by Order of Parliament. Ottawa. Printed by S. E. Dawson, Printed to the King's Most Excellent Majesty, 1907. Sessional paper No. 18," I will read two paragraphs on page 72 (reading):

"As I cannot discover that the Limits betwixt Louisiana & Canada, were distinctly described so as to be Publickly known, I can only inform you, what were generally believed here, to have been the Boundaries of Canada & give you my own Opinion, which is drawn from the Trade that has been Constantly carried on, by the Canadians, under the Authority, and permission of their several Governors. From hence I judge, not only the Lake, which are Indisputable, but the whole Course of the Mississippi from its Heads to it's Junction with the Illinois, to have been comprehended by the French, in the Government of Canada.

The People of Louisiana carry their Trade up the Missouri River, and I can't find that the Traders from that
3640 Province, ever went higher up the Mississippi than the mouth of the Illinois River, on the Contrary, the Traders from Canada, did constantly trade above the Illinois, from their Posts on Lake Michigan, even up to the river St. Croix, and the Falls of St. Anthony. And it

was the Trade alone of the Mississippi Indians, which made the Post of the Baye des Puants, so very advantageous. The Illinois River, tho' formerly in the District of Canada, was, after some Disputes betwixt the Governor, annexed to Louisiana. A South Easterly Line, drawn from the portage betwixt the Illinois River and the waters which run into Lake Michigan will bring you to the post of Houiliatanon upon the Ouabaches fourscore leagues down that river; Computing from that part, where the Boats are Launched, after crossing the Portage of the Miamis. This was the last Trading Post belonging to Canada on that side & was certainly the boundary of Canada on that side. About sixty Leagues below this Post, is the Post of Vincennes, which was served by the Traders of Louisiana, and of Course, was the Boundary of that Province. This is the best information I can procure you concerning the limits, and what I have described to you, are thought to be the real Boundaries betwixt the two Provinces."

Have read passage from Gage quoted by Carter to
3641 which attention is directed, on page 3558 (Abst., 1348) of testimony. Believe I cited some authority to show what was meant there by Gage's reference to trade of the Mississippi, "Except that of the upper parts, from which a portion may go to Quebec." I put in at page 3561 of record (Abst., 1349) a memorial of man by name of Morgan.

Q. I called your attention to page 3558 of record; then I read from Gage's report; then called your attention to what you put on in page 3561 as indicating what Gage meant by trade of upper Mississippi. I ask whether, having read that, you are still prepared to say when he referred to trade of upper Mississippi, he meant trade from far north and not trade described by him in report you have before you?

Mr. Scott. Objection; no statement of witness on re-
3642 direct justifying question; is predicated upon assumed testimony not appearing in his evidence.

Mr. Wilkerson. In view of objection I direct attention to question of counsel on page 3559 where he asked witness if he found anything as to how furs in upper part of Mississippi went to Quebec, and ask whether counsel had in mind that question that upper part of Mississippi which Gage referred to, was same part of upper Mississippi, referred to in Morgan memorial.

Mr. SCOTT. It appeared in Gage's report. He spoke of "upper parts from whence a portion may go to Quebec." He did not define upper parts. I asked witness whether excerpt in memorial threw any light as to how furs in upper part of Mississippi went to Quebec, which was general statement as to upper part of Mississippi and did not define any limits.

3643 The WITNESS (continuing): As historical critic should try, if possible, to find what Gage meant by term "Upper part of Mississippi." Have not done that yet. When Gage says "A South Easterly Line, drawn from the portage, betwixt the Illinois river and the waters which run into Lake Michigan will bring you to the post of Houiliatanon upon the Oubaches fourscore Leagues down that River, Computing from that part, where the Boats are Launched, after crossing the Portage of the Miamis," it seemed to me he meant that was the boundary line; am not sure it is. I put in another passage showing course of trade from sources

3644 of Mississippi without going to Gage to find what Gage meant when he spoke of trade of upper Mississippi. With reference to question at page 3544 of record, dealing with period in question, the period including Perrault's trip to Cahokia and Benton editorial, I have made no extensive investigation with historical works dealing with time subsequent to 1774 for purpose of determining direction of commerce from the Illinois river, or for purpose of determining whether there was any change in trade and conditions from those existing in period from 1763 to 1774.

3645 When testifying about course of trade, as I said before, do not know that I fixed definite date. Simply cited those excerpts to point out movement of trade in that general period Carter dealt primarily with period from 1763 to 1774. Cited other reference to earlier period. DuPratz dealt with period about 1757 and Coxe evidently before 1722. Hutchins would be just about that time. Hutchins was there after 1770. Page 111 of Canadian Archives, to which my attention is directed, paragraph No. 2nd is paragraph of document which is a report dated in 1763 sent to Lords of Trade, and seems to deal with trade conditions in Canada. (Reading paragraph):

> "We are apprehensive as to the whole of this country would become subject to the Laws of a particular Government of Province, it would give that Province such superior advantage in respect to the whole of the Indian Trade, which Your Majesty in Your Justice and Wis-

dom has determined to leave as open as possible, to all of Your Subjects, as might control and obstruct it to the Prejudice of Your other colonies."

3647 After reading paragraph in this Canadian Archives, commencing on page 357, entitled "A Memorial of the Foregoing French Petitioners in Support of their Petitions," particularly to paragraph on 358, as follows:

"We desire, therefore, that, as under the French government our colony was permitted to extend over all the upper countries known under the names of Michillimakinac, Detroit, and other adjacent places, as far as the River Mississippi, so it may not be enlarged to the same extent. And this re-annexation of these inland posts to this province is the more necessary on account of the fur trade which the people of this province carry on to them; because, in the present state of things, as there are no courts of justice whose jurisdiction extends to those distant places, those of the factors we send to them with our goods to trade with the Indians for
3648 their furs who happen to prove dishonest continue in them out of the reach of their creditors, and live upon the profits of the goods entrusted to their care; which entirely ruins this colony, and turns these posts into harbours for rogues and vagabonds whose wicked and violent conduct is often likely to give rise to war with the Indians,"

which is under date of 1774, am not sure am clear what is desired. It would indicate it seems to me that they were willing to extend the boundary line, political boundary line so as to include the territory. From footnote at bottom of page 357, it seems to me purpose would be to serve as means of placing in their hands a monopoly of trade with western Indians. They were wanting to extend their political rights in order to gain monopoly of fur trade. Have turned to
3649 page 381 of same volume. Have read last paragraph on that page, which appears in Sessional Paper No. 18. Heading of document is "Proposed Extension of Provisional Limits." Will read portion of footnote 1 at bottom of page 381 (reading):

"The boundary line, as here proposed indicates the limits within which it was desired to confine the English colonies."

Document says:

"No clue is given as to author of this proposal, but as may be observed from a letter of Dartmouth to Cramahe of Dec. 1st, 1773 (see p. 388), this extension of the limits of the province, like the establishment of the Roman Catholic religion, was represented as a direct concession to the Canadian noblesse and clergy in response to their petition. For other features of the policy which har-
3650 monized with this, see note 4 below, & note 1, p. 389."

(Reading footnote No. 4):

"In addition to the statements made in such letters as that of Dartmouth to Cramahe of Dec. 1st, 1773 (see p. 388) we find the statement of Wm. Knox, the Colonial Under Secretary, after the Quebec Act was passed, that the whole of the derelict country, is, by the first clause of the Act, put under the jurisdiction of the government of Quebec, with the avowed purpose of excluding all further settlement therein, and for the establishment of uniform regulations for the Indian trade.' 'The justice and policy of the late Act' &c. p. 20. See also note 1, p. 389."

Dartmouth was under secretary of the colony; do not see exact title held indicated. I understand he was secretary of state for colonies; am not sure whether he was at this particular time or not. Cramahe, other gentleman referred
3651 to, may have been acting lieutenant governor; don't know who he was.

(Reading last paragraph on page 381):

"In order therefore to obviate the dangers and disadvantages arising from the present defective state of the interior country. To give force and effect to the power and authority of the crown within it. To give scope to the many commercial advantages which may be derived from it, to extend the benefits of civil government to the settlements of Canadian subjects that have been formed in the different parts of it, and to give stability and advantage to the sedentary fisheries on the north side of the Gulph of St. Lawrence, it is proposed that the—"

Am reading from "The Quebec Act, Anno Decimo Quarto. George II Regis. Cap. LXXXIII." Don't find boundaries, stated in brief, of territory annexed to Quebec Act. Un-
3652 derstand all territory north of Ohio and east of Mississippi was included in Quebec Act. I know Cavendish's

Debates on the bill for the government of Quebec, pages 9 and 10, being directed to my attention. I know of the book. Never used it. Don't know standing and reputation. Judging
3653 from title page it is book of standing. Have not used it myself (reading title page):

"Government of Canada. Debates of the House of Commons, in the year 1774, on the Bill for making more effectual provision for the Government of the Province of Quebec. Drawn up from the notes of the Right Honorable Sir Henry Cavendish, Bart, Member for Lostwithiel; now first published by J. Wright, editor of the Parliamentary History, etc., with a map of Canada, copied from the second edition of Mitchell's Map of North America, referred to in the debates. London: Ridgway, Piccadilly."

With above in mind would judge it as book known to historians; to which they went for material. Not knowing it myself, would not want to pronounce opinion on it. Have not worked great deal on Canadian history. Presume it
3654 would be referred to a great deal in connection with Canadian history and some American.

(Reading pp. 9-10):

"The first thing objected to by the honorable gentleman is, the very great extent of territory given to the province. Why, he asks, is it so extensive? There are added, undoubtedly, to it two countries which were not in the original limits of Canada, as settled in the proclamation of 1763; one, the Labrador coast, the other, the country westward of the Ohio and the Mississippi, and a few scattered posts to the west. Sir, the addition of the Labrador coast has been made in consequence of information received from those best acquainted with Canada, best acquainted with the fishery upon that coast, who deem it absolutely necessary for the preservation of that fishery, that the Labrador coast should no longer be considered as part of the government of New York, but be annexed to that country. With respect to the other additions, three questions very fairly occur. It is well known, that settlers are in the habit of going to the interior parts from time to time. Now, however undesirable, it is open to Parliament to consider, whether it is fit that there should be no government in the country,
3655 or, on the contrary, separate and distinct governments; or whether the scattered posts should be annexed to Can-

ada. The House of Lords have thought proper to annex them to Canada; but when we consider that there must be some government, and that it is the desire of all those who trade from Canada to those countries, that there should be some government, my opinion is, that if gentlemen will weigh the inconveniences of separate governments, they will think the least inconvenient method is to annex those spots, though few in population great in extent of territory, rather than to leave them without government at all, or make them separate ones. Sir, the annexation likewise is the result of the desire of the Canadians, and of those who trade to those settlements, who think they cannot trade with safety as long as they remain separate."

My attention is directed to volume 1 of the bulletin of the University of Wisconsin, and to portion entitled:

"The Province of Quebec and the Early American Revolution, a Study in English-American Colonial History by Victor Victor Coffin, Ph. D., Assistant Professor of European History in University of Wisconsin. Published by Authority of Law and with the Approval of the Regents of the University. Madison, Wis., Published by the University, June, 1896."

I will say I know some of the publications in bulletin of University of Wisconsin.

Q. I direct your attention to page 419, "And having reached this conclusion it was almost inevitable that the Imperial authorities should choose for this purpose the province with which the region had been earliest and most closely associated, and to which it was believed by so many to belong,—that of Quebec," and ask you to state if that refers to this Quebec Act?

Mr. Scott. Objection; it says so.

Mr. Wilkerson. It does not refer to act specifically. It refers to Province of Quebec.

A. Would judge that it refers to province of Quebec.

3657 Writer referred to in paragraph commencing at bottom of page 428, ending bottom page 430, is William Knox, as examination of footnote 3 on page 429 reveals.

(Reading footnote 3):

" 'The justice and policy of the late Act of Parliament for making some effectual provisions for the Government of the Province of Quebec asserted and proved; and the conduct of Administration respecting that Prov-

ince stated and vindicated.' By Wm. Knox. Lond. 1774. Though unable to prove it I believe this to have been inspired."

I did not say I was familiar with Coffin. I am not. As to whether it is a document referred to by historians as a source of material, after reading from volume of Carter, "Victor Coffin, The Province of Quebec and the Early American Revolution; A study in English-American Colonial History. University of Wisconsin Bulletin Volume No. 3. Madison,
3658 1896. Based on Manuscript as well as printed sources. Useful for discussion of western land policy of Great Britain. Some of the conclusions reached, however, need revision," my recollection is not refreshed.

(Reading paragraph):

"A very notable pamphleteer of the year 1774 forcibly sums up this matter. After stating that the proclamation of 1763 was intended to be followed up a general plan of regulation for the Indian trade, he affirms (as noted above), that the events of the year following proved fatal to the doing of this, as it was not thought expedient to lay that tax upon the trade by which the expense was to be deferred. 'This was the reason that so large a part of the ceded territory in America was left without government, and that the new province of Quebec contained so small a portion of ancient Canada.' The small French settlements in the region, he continues, were left under the military government of the posts 'as most likely to prevent an increase of inhabitants.' But in the parts contiguous to the old colonies immigrants flocked in and forced the Indians to fall back; and as these new settlements were without civil jurisdiction and were every day increasing, 'the case was judged to be without other remedy than that of following the emigrants with government and erecting a new province
3659 between the Allegheny mountains and the river Ohio for that purpose.' But to prevent a recurrence of the necessity it was resolved (and done by the Quebec Act), to put the whole remaining region under the jurisdiction of the Government of Quebec, 'with the avowed purpose of excluding all further settlement therein, and for the establishment of uniform regulation for the Indian trade.' The Province of Quebec was preferred, 'because the access by water is much easier from Quebec to such parts of this country as are the most likely to be intruded upon

than from any other colony.' Only under one uniform government could the Indian be protected, and thus be prevented 'the quarrels and murders which are every day happening and which are the certain consequence of a fraudulent commerce.' There seems no reason to doubt the substantial correctness of these assertions; especially when we find the Government despatching to Carleton with his new commission in 1775, as a guide in his dealings with the Indians and the western trade, the identical regulations, which had been drawn up by the Board of trade in 1764."

(Reading paragraph beginning in middle of page 431):

"But while defendant the originators of the Quebec Act from the heavier reproach brought against them on this point, I do not wish to be understood as in the least
3660 defending the western policy of the measure in itself. Disastrous as the Quebec Act proved, no part of it I think was more shortsighted or more disastrous than this treatment of the western lands. Following up the proclamation of 1763, it seemed an attempt to definitely maintain in the great heart of the continent, when apparently thrown open for Anglo-American expansion, the policy of monopoly and restriction against which the colonies on the coast were chafing so sorely. It was natural that the latter should imagine themselves threatened and impeded more malignly and seriously than could have been proven to be the case; it was on this side, I have little doubt, that the Quebec Act figured more prominently amongst the colonial grievances. Great Britain might well seem to have become 'the most active foe of the English race in America.' In this light I am inclined to emphasize strongly the importance of the Act in alarming and embittering the colonists."

I know volume 2 of Collections of the Illinois State Historical Library. Have used it some. It is edited by Mr. Alvord. Book is of known standing and accuracy among historical students. In reference standing of Coffin, see here refer-
3661 ence Mr. Carter makes, saying some of conclusions reached need revision. My attention is directed to page XVII of Illinois Historical Collection, and following paragraph.

"Most of the French of the western posts came from Canada, with which country they retained constant communication through trade and exchange of messages

on family affairs. Very few had come directly from France and the number from southern Louisiana was relatively small. Here in Illinois and on the Wabash which under both the French and British regime were subject to the same jurisdiction, they had lived for one or two generations, engaged in the pursuits of trade and the cultivation of their small farms."

Will say am not sure whether have read extract or not; I think I have; in same book am referred to the census
3662 Cahokia on page 624 and to footnote with reference to where inhabitants came from, which indicates that two or three families were connected in some way with families in Canada, but it seems that the editor is not clear on the direct connection between Canada and Cahokia. In general way have passed down over all notes; in cursory way. Think true there were large numbers living in those towns that came from Canada.

Q. On pages 624 to 632 there are a large number of notes, and I was trying to avoid putting all that in the record if I could have you examine that and indicate whether all those notes do not show that practically all those people came from Canada. If you will run through there you will see that the great majority of them are put down as having come from Canada. If you cannot agree with that as a historical expert, we will have them all read into the record.

A. Those footnotes indicate that the residents in Cahokia came from Canada.

Volume 5 of Illinois Historical Collection is one of
3663 books believe I used. Examination of footnotes in connection with census appearing on pages 414 to 423 of Kaskaskia shows evidently quite number of inhabitants of Kaskaskia came from Canada.

Whereupon counsel for complainant read and directed the attention of the witness to volume 2, page XXVII, which is as follows:

"The foregoing description of conditions in British Illinois would be far from complete without an account of one very important element of the society. No sooner had the news gone forth that the land to the north of the Ohio river had been ceded to England by the French than the merchants of the seaboard colonies began to compete for the fur trade of the region in a way that had been impossible hitherto. Up to this time the principal trade in the Illinois had been conducted by Canadian and

Louisiana merchants, the English colonists having found their way north of the Ohio only just previous to the outbreak of the last war."

Page XXIX:

3664 "In the first years of the British rule it looked as if the Ohio river would become the great trade route of the region and supplant the older and, with the French, more popular waterways to New Orleans and Canada. Even the British government seems to have approved at first this attempt to turn aside the trade from its older channels, for in 1769 the colonial governments were empowered to appoint officers to superintend the Indian trade, and Fort Pitt and the Illinois were assigned to Pennsylvania. Thus the Indians north of the Ohio became accustomed to Fort Pitt as the seat of authority in matters in which they were vitally interested."

Especially to "In the first years of the British rule it looked as if the Ohio river would become the great trade route of the region and supplant the older and, with the French, more popular waterways, to New Orleans and Canada."

3665 On page CXXIII:

"Affairs were further complicated by the presence of British merchants, who had rushed into the region to capture the Indian trade. The Michillimackinac company, which had a store at Cahokia, was particularly conspicuous in this competition. The British were able to undersell the inhabitants in their commerce with the Indians and, since this deprived the villagers of a trade which they thought rightfully belonged to them, it was the cause of several complaints. All the British who appeared in the west were not simply traders. The British government, which looked with covetous eyes on these rich lands, sent agents into all parts to report on the disposition of the people. Some of these, although not authorized by their government, openly urged the French people to unite with England, an issue out of their troubles which would not have been altogether unacceptable to the Illinoisans."

And to passage from the same volume 2 of Illinois Historical Collections, page CXLVII:

"We have seen that the Kaskaskians complained of the establishment of the Michillimackinac company at
3666 Cahokia. From the year 1773 many British merchants

found their way to Illinois and established stores in the village. Among the names which occur are J. B. Perrault, representing Marchisseaux of Montreal, James Grant, Myers, Tabeau, Bullion, William Arundel, John Askins, and others. These merchants practically monopolized the fur trade of Illinois; but the Cahokians, finding that they interfered with the Indian trade as well, were strong enough to make regulations to protect their own interests and gave a limited monopoly of that trade to one of the citizens of the village, and prohibited all sale of liquor to the savages by others. When the Indian outrages reached their climax in the year 1789 and Kaskaskians were begging the military officer at Vincennes to send troops for their defense, the Court of Cahokia still further regulated intercourse with the Indians and forbade all sale of liquor by any one."

The WITNESSS As to whether or not, referring to this last paragraph, it is a fact that Heward came down into Cahokia in 1790, would say, Heward came down; I am not sure it was Askins that sent him. Having had my attention called to page 509 of same volume, will read first power of attorney appearing on that page (reading):

"To-day the twenty-fourth of April, 1787, there
3667 appeared at the office of the jurisdiction of Cahokia in the Illinois M. Hugh Heward, bearer of the following documents and he has required the registry thereof and has transcribed them in the present register himself, since the clerk does not understand the English language, as follows:

1st Piece.

Know all men by these presents that I, John Askins of Detroit, merchant, have made, ordained, constituted and appointed and by these presents do make, ordain, constitute and appoint and in my place and stead put and depute Mr. Hugh Heward of Detroit aforesaid my true and lawful attorney for me and in my name and for my use to ask, demand, recover and receive of and from any person or persons indebted to me or any of my former co-partners; giving and granting to my said attorney my sole and full power and authority to take, pursue and follow such legal courses for the recovery, receiving and obtaining of the same as I myself might

or could do, were I personally present; and upon receipt of the same, acquittances and other sufficient discharges for me and in my name to sign, seal and deliver; as also one or more substitute or appoint & again at his pleasure to revoke & further to do & perform & execute for me & in my Name all singular Thing or Things which shall or may be necessary touching & con-
3668 cerning the premises as fully & entirely as I the said John Askins ought or could do in & about the same or as if more especial authority was required than is herein given—ratifying allowing & confirming whatever my said Attorney shall lawfully do or cause to be done in & about the premises by virtue of these presents.

In witness whereof I have hereunto set my Hand & Seal the fifteenth Day of November in the year One Thousand Seven Hundred & Eighty Six.

(Signed) JOHN ASKIN.

Signed, Sealed & delivered in presence of
JOHN McCASLAN Witness
WILLIAM PARK
HUGH HEWARD

Et a linstant Loriginal
Remis a Mr. hugues huvard
labuxiere."

That is followed by other powers of attorney; from John Askin, George Leith and Angus Mackintosh of Detroit and directors of the Miamis Company and Hugh Heward of Detroit.

Whereupon counsel for complainant referred to and read page 523 of same volume, a power of attorney, as follows:

"Know all men by these presents that we, Edward William Gray Esquire, William Goodall, John Lilly,
3669 Peter Bouthiellier and Robert Cruickshanks, merchants, executors of the last will and testament of William Kay, late of Montreal in the district of Montreal in the province of Quebec, merchant deceased, have made, ordained, authorized, constituted and appointed and by these presents do make, ordain, authorize, constitute and appoint Josiah Bleakley, late of Michillimakinac but now of Montreal aforesaid, merchant, our true and lawful attorney, for us and in our name or (otherwise) and to and for our use, as executors as aforesaid, to ask, demand, sue for, recover and receive of and from all and every person or persons whatsoever whom it doth, shall or may concern, and particularly of and from David McCrae, David McCrae and Co., Pierre Antoine Ta-

beau, Jean Baptiste Morelle; James Aaron Holt and Charles Gratoit at Michillimackinac or elsewhere in the upper country, all such sums and sums of money, debts, dues and demands whatsoever, as are due, owing, payable or belonging to the said William Kay at the time of his decease, and now are or hereafter may become due, owing, payable or belonging to as the executors of his said last will and testament, for or by reason of any cause, matter or thing whatsoever and to compound and agree to take less than the whole for all or any of the debts or demands aforesaid, where the whole in all appearance cannot be got; and upon payment, recovery or receipt thereof or of any part or parts thereof acquit-
3670 tances or other good and sufficient discharges in the law for the same, for us and in our names and executors as aforesaid, accordingly to make, seal and deliver and generally to do, transact, manage and perform all other matters and things anywise relating to the premises in such manner as to our said attorney shall appear most advisable and expedient as fully, amply and effectually in all respects as if the most special powers were to our said attorney for the purposes aforesaid by us given, or as we ourselves might or could do personally; and an attorney or attorneys under him for the purposes aforesaid, with the like or more limited powers, to make and at his pleasure to revoke.

Hereby allowing, ratifying and confirming all and whatsoever our said attorney, or his substitute or substitutes shall lawfully do or cause to be done in or about the premises by virtue of these presents. In witness whereof we have hereunto set our hands and seals the twenty-fifth day of April in the year of the Lord, one thousand seven hundred and eighty-eight.

Signed, Sealed and delivered in the presence of
JN. BOUTHIELLIER.
SAMUEL GENARD.

EDW. WM. GRAY (L. S.)
WM. GOODALL (L. S.)
JONNE LILLY (L. S.)
P. BOUTHIELLIER (L. S.)
R. CRUICKSHANK ((L. S.)

This registry was made on the requisition of M.
3671 Charles Gratoit and conforms to the original and was transcribed by me, Jean Dumoulin, merchant, in default

of a knowledge of the English Language by me, notary at Cahokia, October 28, 1788.

CH. GRATOIT,
JEAN DUMOULIN,
JOSIAH BLEAKLEY."

The WITNESS. I notice that this was registered in Cahokia same as other powers of attorney (reading):

"This registry was made on the requisition of M. Charles Gratoit and conforms to the original and was transcribed by me."

Referring to pages 575 and 577 of same volume, petition of La Croix in regard to trade will read into record:

"Petition of La Croix in Regard to Trade, October 29, 1785.

To MM. the Magistrates and the Honorable Court of the District of Cahokia.

Sirs:—

Jean Bte. LaCroix has the honor to set forth to you that for the public good, the Court granted him on the 8th of March, 1782, permission to trade with the savages in this village under the conditions declared in the
3672 decree of the said Court, rendered the said day, March 8, 1782. The said M. LaCroix has not been troubled up to the present in his trading; but now he is in a position very prejudicial to the public and to the petitioner and which tends to cause the citizens to perish from hunger, especially at a time of such great calamity as we find ourselves in at present.

The alien merchants of Michillimackinac, gentlemen, are here and, far from contenting themselves with the asylum which we give them to sell their merchandise to the French, they are trading with the savages, who come to this village for all the goods which the said savages bring and are taking from us in this way the means of making a living, since they overcharge us for these same commodities of trade at exorbitant prices; and to the detriment of the people they are making hords of the goods in order to transport them out of the place or to sell them at prices most burdensome to the public. Since these merchants have no right of trade in this village and since, if we have some goods to trade with the Indians (this) advantage should belong to us and not to strangers; and since we suffer them here for

convenience, after having been sent away from the Spanish bank, it is not just in us to permit these traders to carry off before our eyes what Providence offers us through the savages. But these traders are trading before our eyes and up to our very doors not only in
3673 merchandise but also in what is more pernicious, drink, and are favoring the savages at a time when one cannot be too careful. In order to avoid the evils which may result therefrom, I pray, gentlemen, that you have the goodness to continue me in my trading right and that all alien merchants for the future be forbidden to participate therein in this village or to trade in anything with the savages who come here, on pain of a fine, such as it shall please you to fix, and of confiscation of that for which they shall have traded; and in return the petitioner offers to conform to the conditions of the decree of the Court of the said 8th of March, 1782, so that this branch of commerce be preserved for us in our village (and not pass) to aliens; and this is my conclusion. At Cahokia October 29, 1785.

J. B. H. La Croix."

"Petition of La Croix in regard to Trade, October 29, 1785.

A messieurs Les Magistrate Et respectable Cour du district des Cahos.

Messieurs

Jean Bte La Croix a lhonneus de vours exposer que pour le Bien public la Cour luy a accorde le 8. de Mars 1782 la permission de la traite avec les sauvages dans de cillage aux conditions Expliquees dans la Sentence de ladite Cour rendue cedit jour j. mars 1782. ledt Sa traite mais presentement il se trouve (en) Cas au prejudice Notable du public Et de Lexposant qui tend a faire perir Les Citoyens de fiam sur tout dans d'aussi grandes Calamité comme nous nous trouvous presentement.

Les commerceans Etranger de missilimakina Sont icy Messieurs qui Bien loin de Se Contanter de Lazile que nous leur donnons pour vendre leurs merchandises aux francais trantent des Sauvages qui viennent a ce village toutes les douceurs que lesdt sauvages aportent Et nous otent par ce moyen les faculte de pouvoir vivre En nous survandant ces memes danrées de traite a des prix

Exhorbitant Et En En faisant des amas au detriment du peuple pr le transporter hor de Lendroit ou Le vendre a des prix plus honereaux au public comme ces commerceants nont aucun droit de traite dons ce village Et que si nous avons quelque douceur a traiter des sauvages * * * (MS torn) * * * Benefice Nous apartient de droit Et non a des Estranger que nous soufr (ons) icy par Bienseance ayant Eté renvoyez de la rive Espaknole il nest past juste de Nous laisser Enlever par ces memes marchand a nos yeux ce que la providence nous offre par les sauvages; ce qui ces merchands traitent non Seulement des merchandise a Nos yeus jusques sur nos foyer mais Encore ce qui est plus pernici (eux) de la boisson Et soutent les sauvages dans un temp ou
3675 on ne sauroit Etre trou Circonspect; pour Eviter (les) malheurs qui En prevent resulter je require Messieurs que vous ayez la bonté de me Continuer dans ma traite Et quil soit fait deffance a tous Commerceants Etranger de Sy immisser a lavenir dans ce village ni dy traiter aucunne Chose avec les sauvages qui y viennent a piene dune amende telle quil vous plaira fixer Et de Confiscation de ce quils auront traitor sous loffre que fait lexposant de Se Conformer aux Conditions de la Sentence de la Cour dudt jour 8, mars 1782. Et que cette Branche de Commerce nous Soit Conservée dans notre village. * * * (MS torn) * * * aux Etrangers cest a quoy je Conclud aux Cahos le 29, 8bre 1785.

J. B. H. La Croix,"

3676 I have volume 5 of Illinois Historical Collections and have turned to page 172 and 173, letters of Thomas Bentley (reading):

"Thomas Bentley to A. S. De Peyster, August 12th, 1780. (B. M. 21845, f. 42—A. L. S.)

Ouyah the 12th August, 1780.

Sir:

I beg leave to refer you to what I have already wrote you on the subject of Mr. Dejean. I beg the favour of you after perusing the enclosed to address & forward it to General Haldimand. As I wish to remit to Canada as well as to draw off from the Country I propose sending boats up this river for Detroit as well as the Illinois River for Macinac next Spring. I coud wish for that purpose if it does not clash with the Service that the Savages might be requested not to molest any Boat

going up those Rivers for the purpose of carrying Remittance which I hope & doubt not but you will think reasonable. If the General or yourself shoud do me the honor to write me wish you woud adress me in a fictitious name for fear of accidents & send it by a person of confidence to be delivered only to myself. It is reported here that Canada is attacked by a French fleet. If it is likely to fall (which I hope will never be
3677 the case) beg of you to destroy these letters. I have the Mortification to inform you that Rochablave's malice has ruind me (irretrievably I fear) although my misfortunes originated with you yet I do not blame you. If you will be pleased to put me in a way of recovering myself at Detroit which you now have in your power to do, I will repair to you on your sending me proper Guides, but it must be in the Mercantile Line as I coud not pay my debts recover my lost Fortune by any other means. I have the Honor to be with real respect,

Sir, Your very obt hble Servt.

T. BENTLEY."

I know who Thomas Bentley was in general way; he was a trader that had headquarters at Cahokia, traded at New Orleans, Montreal, Detroit and Michillimackinac, I believe; maybe other places. I think traded at Montreal; did at number of those places at least.

I read into record at page 369 of Volume 5 of Illinois Historical Collections: "Memorial of Francois Carbonneaux to Congress, December 8, 1874 (reading):

"To the Honble. The United States of America in Congress assembled. The Memorial of Francois Carbon-
3678 neaux of the Illinois Country, Agent for the Inhabitants thereof humbly showeth:

That the said Inhabitants to the Number of four hundred Families exclusive of a like Number at Post Vincent, labour under the greatest Inconveniences for want of Order and good Government. That many ill disposed Persons have taken Refuge in their Country—That Population is daily increasing—That their Property is invaded and arrested from them by the Hands of daring Intruders and that Violences are frequently committed in various ways, against their Persons and against the Persons and Properties of the Natives. Your Memorialist doth therefore in behalf of the inhabitants aforesaid, humbly pray, that Congress will be pleased to take

their distressed Case into Consideration, and either immediately establish some Form of Government among them, and appoint Officers to execute the same, or that they will nominate Commissioners to repair to the Illinois, to inquire into their Situation, and to consult with the Inhabitants thereon; and do and execute such Matters and Things as they shall find necessary, until some regular Government can be established.

Your Memorialist conceives that it is in the Power of Congress by such a Measure, not only to restore Tranquility among the Inhabitants of an extensive and fer-
3679 tile Country, but to give Peace to those of the Frontiers of Virginia, and to establish, a valuable Commerce, not only with the Natives, but with new Spain, which is now wholly carried on by British Subjects from Canada.
Trenton Dec. 8th 1784

CARBONNEAUX."

Turning to page 410 and 411 of letter of Joseph Parker, to President St. Clair, "Joseph Parker to President St. Clair, October 2, 1787," I read last paragraph (reading):

"The inhabitants also complain of the traders from Michilimakinac and Detroit, that they should be suffered to remain in their villages, and engross all the fur trade and country belonging to the United States, to the great injury of American Subjects. The inhabitants are of opinion that nothing but a government will check their practice of setting the savages upon them.

There is such a considerable trade carried on in the Illinois, that a sufficient revenue might be raised by laying a duty upon the goods carried into that country, and upon the fur carried out. The traders in St. Louis and St. Genevieve, on the other side of the Mississippi
3680 have not less than an hundred traders, who are supplied with goods annually from Michilimakinac and Detroit, and sent down to Kaskaskia and Cahokio, and the Spaniards come over and purchase them. Each trader purchases, on an average, from thirty to forty thousand livres annually, which is six thousand dollars. The traders of St. Louis and St. Genevieve have often told me, if Americans would supply them with goods at Kaskaskia & Cahokia they would give them the preference, and allow them 125 pr ct advance on the sterling cost. You

will easily perceive the revenue that might be raidsed annually in that new country.

I am, Sir, yr hble servt

JOS PARKER."

Don't know whether Parker was sent our pursuant to Carbonneaux memorial. Memorial is dated December 8, 1784; Parker's letter is dated 1787. Having read record before remember name Parker being connected with inci-
3681 dent in Kaskaskia of driving out John Dodge. Find note here speaking of hostility of two men. Don't know full details of Parker or how long at that post; at Kaskaskia; think very short time. Think St. Clair was President of Congress. I turn to page 381 and 382, petition of Pierre Langlois, bottom page 381 (reading):

"Pierre Langlois,

Notary and clerk.

Kaskaskia, County of the Illinois, this second day of June, of the year of our Lord, one thousand seven hundred and eighty-six.

We, the undersigned, pray Congress to take notice of the country of the Illinois and to establish immediately the government for the protection and defence of the inhabitants and their property; for we believe (that) the fertility of the land and the great advantage to be derived by commerce (will attract) a great immigration
3682 to the advantage of the country. We think that this is not a small object for Congress. It is for this reason that we pray for a system of government to protect us, to strengthen our hands, and to maintain our rights, not only against the Indians, but rather against Michillimakinac and a company of the subjects of Great Britain who are getting possession of the commerce from the good subjects of the states. They have established at Cahokia, a village near us, a trading post which causes great harm and detriment to the good subjects of the states. They have destroyed the establishment of the law which the inhabitants had made among themselves. We suffer a great loss in the recovery of our just debts.

We, therefore, again pray Congress not to abandon us any longer; but to send and grant us laws without delay, for the subjects of Great Britain threaten to take us under their laws. Likewise a few persons upholding the subjects of Great Britain have installed themselves

as commanders to such a point as to take subjects of the states and transport them to the Spanish shore and have them imprisoned, to the disgrace of the establishment of the government of the states. The men who have assumed command are M. M. Nicholas Lachanse and John Dodge.

PIERRE LANGLOIS,
Notary and clerk."

3684 From my knowledge and recollection of passage in Vol. 2 of Illinois Historical Collections, page CXXXII, "The long expected reply from Congress was brought to Kaskaskia by Joseph Parker in January, 1787. The people were eager to learn its contents, and sent in haste to Barbau at Prairie du Rocher that he might come and open it," and of Perrault's statements, Heward's, Governor St. Clair's statements, letter of Governor Cass to Kinzie, all in evidence, should think there was an indication that there was some little commerce, during period from 1782 to about 1817, that went by way of St. Louis, Cahokia and Kaskaskia and Canada. Don't know just how much. There was some commerce passing between Canada and territory in vicinity of Cahokia, Kaskaskia and St. Louis. Think there are evidences of that, as I have read over the letters in Kaskaskia records. I find a number of traders who were connected with Canadian towns. A number of references in book, which could not refer to at present, however, indicate some of trade went by way of Detroit and other places.

Re-direct Examination by Mr. Scott.

Date of report of General Gage for seat of Government at Montreal, which I was asked to compare with statement he made in 1773, appearing in Kaskaskia records, is March 20, 1762.

3685 Will read into record portion of his report from page 71 where he suggests remedy, after setting out difficulty with trade. (Reading):

"To remedy the Inconvenience & abuses, which both the English & French have suffered, thro' the management of the Indian Trade; I know no better method, than to assign a certain Number of Posts in the distant Country, to which only, the Traders should be allowed to traffick, and to abolish all the little Posts.

And I am of opinion the Five Posts hereafter mentioned, will enable His Majesty's subjects to trade with almost every Nation of Indians, that has yet been discovered, and that have been accustomed to Trade with the French, viz. Kanamistigoua on Lake Huron, Michilimakinac Baye des Puants in Lake Michigan, The Detroit, and Houiliatanon, on the Ouabache."

Will read next paragraph after paragraph which I was asked to read in to record on page 162 of Carter, which referred to arrangements as result of Quebec Act. (Reading):

"These arrangements were not put into execution, however, because of the outbreak of the American Revo-
3686 lution, which absorbed the whole attention of both the home government and Canada. As early as January, 1774, the detachment of troops had been ordered to leave Fort Gage, and the allowance to the commanding officer discontinued. From this time on little or no attention was paid to western affairs. Illinois was left in the hands of a Frenchman named Rocheblave, who acted as agent for the government from 1776 to 1778. His best efforts to save the country to Great Britain were, however, in vain. As the government had ignored his call for troops, an American army under George Rogers Clark easily effected the conquest of Illinois, and the whole Northwest in 1778."

3687 MILO MILTON QUAIFE, a witness on behalf of defendant.

I am 30 years old and teach history in Lewis Institute
3688 of Technology. I graduated at the Nashua, Iowa, High School in 1899; after that spent four years in Iowa College in Grinnell; graduating from that institution in 1903 with the degree of Ph. B. Then spent a year teaching in Sheffield, Illinois, High School and the next year in graduate study at the University of Missouri, taking my degree in the department of history and political science with especial emphasis upon history, receiving the degree of Master of Arts in the spring of 1905. From 1905 to 1908 was a graduate student in the University of Chicago, taking work in the departments of history and political science, history being the field of my major study and received the degree of Doctor of Philosophy,

Magna cum laude in the spring of 1908. Since the fall of 1908 have been teaching in the Lewis Institute of Technology, the first year as instructor in history, and from 1909 assist-
3689 ant professor in history and active head of the department. In the school years of 1904 and 1905, was University scholar in history at the University of Missouri, an honor appointment. In 1905 and 1906, and 1906 and 1907, I was University fellow in history in the University of Chicago, likewise honor appointment. In 1907 and 1908, was an assistant in the University of Chicago, and my work was to teach classes of modern European history. I have published a monograph on "The Doctrine of Non-Intervention of Slavery in the Territories" privately printed in 1910, which is my doctoral thesis for the degree in the University of Chicago. In 1909 and 1910 I edited the diary of President Polk, which was published in four volumes by McClurg & Co. of Chicago, and has been favorably reviewed by standard critical reviews, such as the American Historical Review and the Annals
3690 of the American Academy of Political Science. During the summer of 1908, was engaged with Dr. Woodhead of the University of Chicago, a member of the Sociological department of the faculty of that institution in preparing a report on the subject of rapid transit subways, which was published by the Committee on Local Transportation of the Chicago City Council in 1909, and is historical and statistical in character.

My part of the work was to investigate the subway system of Boston, New York and Philadelphia, and I wrote those sections. Am a member of the American Historical Association, Mississippi Valley Historical Association, and was a delegate of the Chicago Historical Society to the annual meeting of the Mississippi Valley Association at Iowa City, in 1910. On May 18, 1911, I delivered a paper before the latter associ-
3691 ation at Chicago on The Chicago Massacre. In June, 1909, delivered a lecture before the Chicago Historical Society on the 60th anniversary of the death of James K. Polk, my subject being "The Obscuration of James K. Polk." Have delivered two articles for publication in McLaughlin & Hart's forthcoming cyclopedia of American government on the subjects of the Wilmot Proviso and Non-Intervention with Slavery. For several months, have been engaged in preparing a history of Ft. Dearborn and early Chicago, to appear next year under the auspices of the Chicago Historical Society as the chief feature of its communication of the cen-

tennial of the massacre. The society has placed at my disposal all its manuscript and other material which has been accumulated during its existence, and which so far as it pertains especially to Ft. Dearborn, has been reserved for this work, and therefore, has not been accessible to scholars generally. It is chiefly in connection with this study that I have acquired

3692 my knowledge of the early history of Chicago and surrounding region. Have investigated certain writers or authorities referred to by the government witnesses as to their standing. Was familiar with a large majority of them before my attention was called to this case, due to the study of the history of Ft. Dearborn and early Chicago, above mentioned, and my general historical training. I consider

3693 that my training as a historian has equipped me to determine the weight to be given to the statements of these writers.

Beck, the writer of Beck's Gazetteer, referred to by Prof. Alvord in his direct testimony at page 289 (Abst., 131) of this record, rests his statements as to the practicability of a canal upon a report of Graham and Philips. He seemed to have used other reports in making up his general discussion. That being true, Beck's Gazetteer will possess whatever force attaches to that report, but will have no additional significance.

Referring to the Cass letter to the Secretary of War, dated June 20, 1816, referred to by Alvord on page 226 (Abst., 98), wherein Cass refers to "Three great channels of communication by which traders may introduce the goods into the Mississippi and Missouri country from the British Dominion. One is by way of Chicago and down the Illinois; another by way of Green Bay up the Fox River and down the Ouisconsin. This

3694 has been the great thoroughfare along which goods have been taken," etc., and where, speaking of the establishment of posts, he says, "another at Chicago will effect the same object upon the Illenois," my conclusions as to the suggestion relating to a route by Chicago and the Illinois or the Desplaines are that Cass, being an able man and well informed, is worthy of consideration. His general mention of the channel of trade by the Chicago and Illinois rivers, makes no specific mention of the Desplaines. As to the use made of that, we must rely on deductions from our knowledge from other sources. When usable, the Desplaines would probably be used in connection with this route, while at other times, the trade would have to be carried on it without utilizing the Desplaines.

From Hubbard we know the Desplaines could be used at times of spring flood; was sometimes used at other times with greater or less difficulty, and at times could
3695 not be used at all. Traders make provision for carrying on their work, either from choice or necessity, with-
3696 out the use of the Desplaines. In support of the last statement I cite Chap. 17, page 150 of the Caxton Club edition of Wau Bun, which states that Kinzie carried on most of the trade with his out stations by means of pack horses. Graham and Philips state that at times the portage was 50 miles and that traders' boats were transported by wagon. The title page of Wau Bun reads: "The early Days of the Northwest by Mrs. John H. Kinzie of Chicago. New edition with an introduction and notes by Reuben Gold Thwaites, Editor of the Jesuit Relations and allied documents,
3697 Wisconsin Historical collections, Chronicles of Border Warfare, etc., with numerous illustrations, Chicago, The Caxton Club, 1901." Mrs. Kinzie took up her residence in Chicago about 1834; she was the wife of John Harris Kinzie, a son of John Kinzie, the trader, who lived at Chicago from 1804 with intermissions, to his death in 1828.

Motion to strike out answers of the witness stating facts as if based on his own knowledge without giving authority for his statements.

3698 (Witness reading from Wau Bun, page 149):

"Mr. Kinzie's enterprising and adventurous disposition led him, as he grew older, to live much on the frontier. He early entered into the Indian trade, and had establishments at Sandusky and Maumee, and afterwards pushed further west about the year 1800 to St. Josephs. In this year he married Mrs. McKillip, the widow of a British officer, and in 1804, he came to make his home at Chicago. It was in this year that the first fort was built.

By degrees, more remote trading posts were established by him, all contributing to the parent one at Chicago; at Milwaukee with the Meenomonees; at Rock River with the Winnebagoes and the Pottowattamies; on the Illinois river and Kankakee with the Pottowattomies of the prairies, and with the Kickapoos in what was called 'LeLarge,' being the widely extended district afterwards erected into Sangamon County.

Each trading post had its superintendent, and its complement of engages—its train of pack horses and its

equipment of boats and canoes. From most of the stations the 'fur and peltries' were brought to Chicago on pack horses, and the goods necessary for the trade were transported in return by the same method.

The vessels which came in the spring and fall (seldom more than two or three annually), to bring the supplies and goods for the trade, took the furs that were already collected to Mackinac, a depot of the Southwest and American Fur Companies. At other seasons they were sent to that place in boats, coasting around the lake."

3699 Schoolcraft in his account of the trip up the Illinois in 1821 (which has been read into the record in connection with the testimony of the witnesses for the State and Mr. Lee) says he talked with some traders who thought a canal to Mount Joliet would answer.

3700 Referring to the Graham and Phillip's report, the statement which I had in mind when I said the Desplaines could not be used at all, is as follows (reading from page 9 of this document):

"On opening the canal, however, two difficulties would be experienced. First. The Plein would be found to be above the level of the canal; its water of course would be diverted from its natural channel, and pass by the canal into the lake. Second. Supposing that evil remedied by a lock to lift vessels into the Plein, yet the Plein, during half the year, does not contain water enough to float a boat, and so could not become useful as a national highway."

3701 The paragraph on page 9 beginning, "To conclude, the route," which appears at page 258 of the transcript (Abst., 116) is pertinent in this connection.

Q. Now if you have further citations upon that same point please give them.

A. Hubbard after 1824 used horses instead of the Desplaines River in connection with the fur trade.

Motion to strike out as not responsive and a statement by the witness without showing authority.

3702 I refer to page 136 of Hamilton's Hubbard, which appears at page 505 of the transcript (Abst., 220-221) and continues to page 506, the last words being "designated on the old maps as Hubbard's Trail."

The letter of Cass states nothing directly as to the Desplaines. Our inference as to the Desplaines will be controlled

by our knowledge from other sources of the conditions governing the navigation of the Desplaines.

It was agreed between counsel that all this testimony could go in subject to the objection incompetent, irrelevant and immaterial.

3703 The WITNESS (continuing): I am familiar with the two translations of Charlevoix's letters of September 14th and September 17, 1721, which appear in the record in this case; the one of September, 1761, and the other of 1763, and I have compared those translations with the original French appearing in a volume entitled "Journal d'un Voyage fait par ordre du Roi dans l'Amerique Septentrionnale. Adresse a Madame la Duchesse. De Lesdigvieres. Par le P. De Charlevoix, de la compagnie, de Jesus, Tome Sixieme. A Paris. Ches. Pierre—Francois Giffart rue Sainte Jacques, a Sainte Therese. M. Doc XLIV. Avee approbation & Privilege du Roy."

A preliminary requirement for the degree of doctor of Philosophy at the University of Chicago is the ability to read French and German for purposes of historical investigation. I have complied with that requirement without difficulty, and in connection with my studies at the University and to some extent since then, have made use from time to time of French documents.

3704 For ordinary purposes of historical investigation, where necessary with the aid of a dictionary, I am able to carry on my work; though, I do not pretend to have completely mastered the French language.

Objection. In view of the witness' answer, the government objects to any evidence from him with reference to either the correctness or incorrectness of either translation.

Q. Now, Dr. Quaife, you say you have compared the translations with the French text; is your knowledge of French sufficient to enable you to determine which, if either, of these translations is correct?

Objection, same as foregoing.

A. I so consider.

In making a comparison I cite the pertinent portion of the original French text, the title page of which has just been read, Volume 6, page 104, "Apres qu'on l'a remontee cinq ou six lieues, on passe dans celle des Illinois par le moyen de

deux portages, dout le plus longue n'a que cinq quarts de
3705 lieuses; mais comme cette Riviere n'est encore qu'un Ruisseau en cet endroit, on m'a averti que dans la Saison, ou nous sommes, je n'y trouverois pas assez d'eau pour mon Canot."

The translation of this section used in court as given in the record, page 135 (Abst., 58), and in Alvord's direct testimony, page 762 (Abst., 317), is as follows: "But being informed that at this season of the year there is not sufficient water for a canoe * * *." The correct translation of the portion beginning with "mais" should be "but as this river is only a brook in this place (or at this place) I was informed that at this season I would not find water enough for my canoe."

The French for the whole clause, "But as this river is only a brook in this place," etc., is as follows: "Mais comme cette Riviere n'est encore qu'un Risseau en cet endroit."

3706 "Je crois vous avoir fait entendre dans ma derniere que j'avois a choisir de deuz Routes pour gagner les Illinois; le premiere etoit de retourner au Lac Michigan, d'en cotoyer toute la Cote Meridionale, & d'entrer dans la petite Riviere de Chicagou. Apres qu'on l'a remontee cinq ou six lieues, on passe dans celle des Illinois par le moyen de deux portages, dout le plus longue n'a que cinq quarts de lieues; mais comme cette Riviere n'est encore qu'un Ruisseau en cet endroit, on m'a averti que dans la Saison, ou nous sommes, je n'y trouverois pas assez d'eau pour mon Canot; j'ai donc pris l'autre Route, qui a bien aussi ses incommodites, et n'est pas a beaucoup pres aussi agreable; mais elle ets plus sure."

"But, as this river is only a brook in this place (or at this place) I was informed that at this season I would not find water enough for my canoe."

3707 Q. Would a translation, or could a translation of the passage which you have read and which was referred

to by the State which omitted or gave no equivalent for the words meaning that this was only a brook at this season, would that fairly be called a free translation?

Objection that the translation speaks for itself and is not a matter for expert testimony.

A. The term "free translation" is a loose term. As it is commonly used, I should say that this is an incomplete or partial translation of the French text.

Have read the testimony of Professor McLaughlin taken in this case, and having in mind his conclusion based upon these letters of Charlevoix as to a "route by way of the River of Chicagou and the Desplaines River" appearing on page 762 (Abst., 317) of the record.

3708 I see no reason for questioning the correctness of this conclusion where he states that it appears to him an inevitable conclusion that the route by way of the River Chicagou and the Desplaines was a known route at that time and one which he preferred to take if he could do so. Charlevoix there records the Illinois and Desplaines as one stream.

The passage wherein he designates the Illinois as only a brook reads "And enter the old river Chicago, after one has ascended this five or six leagues he passes into that of the Illinois by means of two portages." Concerning this he expressly states that, "this river is only a brook in this place," the French word "endroit."

3709 Objection that the translation has been misread.

3710 The WITNESS (continuing): The French text reads, "mais comme cette Riviere n'est encore qu'un Ruisseau en cet endroit." This does not stand upon information, but is Charlevoix's own statement, "but as this river is only a brook in this place" or "in that place." I have stated the translation exactly as it appears in the original French.

He refers to the upper part of the Desplaines and the statement that "I was informed that at this season I would not find water enough for my canoe" is explanatory.

Thus it will be seen that Charlevoix saying that there were two routes of travel, one by way of Chicago, does not necessarily imply anything as to the navigability of the Desplaines; while there is a positive assertion which precludes the possibility of its being navigable in the upper part at least.

My conclusion with respect to this passage is that one could hardly find a stronger historical fact of the non-naviga-

3711 bility of the Desplaines, or at least a part of it, since he treats the Illinois-Desplaines as one stream, but does not definitely indicate where it ceases to be a brook.

His is not the testimony of one who has tried the passage and failed, but the statement of one who fully intended to take it, gave it up and chose a disagreeable and tedious way as a substitute on information which he relied upon to the effect that the Desplaines would not float a canoe.

The statement that the Desplaines is "a mere brook" is given quite incidentally, and it being unconsious evidence, is therefore, of high value.

I would also note that Charlevoix's means of judgment as to the reliability of this information was better than ours can be and that he used a mere canoe, which could be easily carried by two men.

Objection; not responsive; witness not qualified to state conclusion on this matter.

3712 I can best state Charlevoix's position as an authority by reading from Winsor's Narrative & Critical History, Volume 4, page 154, heretofore referred to in this case. An article written by Charles C. Smith, in the chapter on Acadia, reads:

"Among the later French writers the pre-eminence belongs to the Jesuit Father Pierre Francois Xavier de Charlevois, who had access to contemporaneous materials, of which he made careful use; and his statements have great weight, though he wrote many years after the events he described. His Historie de la Nouvelle France follows the course of the French throughout the continent, and scattered through it are many notices of the course of events in Acadia, but its more particular characterization belongs to another chapter."

In this connection, I refer to page 358 of the same volume, the chapter, a Critical Essay and Authorities, on Frontenac and his time, by George Stewart, Jr.:

3713 "The general history of the administrations of Frontenac, De la Barre, and Denonville, is exhaustively treated by Father Francis-Xavier de Charlevoix; and the first place in time and importance among the contributions to the general history of Canada, of a date earlier than the present century, must be given to this Jesuit's Historie et Description Generale de la Nouvelle France avec le Journal Historique d'un Voyage fait par l'ordre du Roi dans l'Amerique Septentrional which was issued at Paris in 1744. Shea says: 'Access to State papers and archives of the religious order to which he belonged, experience and skill as a practical

writer, a clear head and an ability to analyze, arrange and describe fitted him for his work. Parkman, whose studies have made him a close observer of Charlevoix's methods, speaks of his "usual carelessness."'

Charlevoix arrived in Canada in September, 1720, on an expedition to inspect the missions of Canada. His purpose took him throughout the limits of New France and Louisiana, and by the Illinois and the Mississippi to the Gulf. His work is commensurate with his opportunities; his faults and errors were those of his order; and his religious training inclined him to give perhaps undue prominence to the ecclesiastical side of his subject; and though the character of Frontenac suffers but
3714 little at his hands, some of the prejudice which Charlevoix bestows upon the Recollects necessarily colors his judgment in matters where the Governor came in contact with the Jesuits."

I would point out that neither of the qualifications made in the passage just read from page 358 apply to the case in point. First, that he describes events that date prior to his time, and second, that being a Jesuit, he emphasizes their doings and was unfair to Frontenac and the Recollects.

Motion to strike out on the ground that the passage refers to other and later historical works than the excerpt from the letter in question.

3715 The WITNESS (continuing): Summarizing my conclusions as to the significance of Charlevoix's letter, the passage shows that persons passed from the Great Lakes to the Illinois country by way of the Chicago-Illinois route; it expressly shows that the upper part of this, evidently the Desplaines, although it is not clear how much of the upper part or how much of the Desplaines was a mere brook. It shows that at this season, September, it was so dry as not to float a canoe, the lightest sort of a craft. Since a canoe could readily be carried, it seems a fair inference that the information as to the lack of water sufficient for a canoe applied to a considerable portion of the river. Otherwise, it would not have been deemed an obstacle to the passage of it.

Charlevoix's letter shows the difficulties of the Kankakee route. Therefore, he believed the Chicago-Desplaines route was even more tedious. Therefore, my conclusion is that the lack of water referred to applied to a considerable por-
3716 tion of the Illinois, or, as we would say, the Desplaines river.

Have examined the excerpts from Ebenezer Child, Wisconsin Historical Collections, Volume 4, page 162, appearing in the transcript of the testimony of Mr. Alvord at transcript pages 277 to 280 (Abst., 126-128), which passage shows that in 1821 Child went down the Mississippi river to St. Louis and returned by way of the Illinois river to Chicago; that he found two feet of water all the way between the Desplaines and the Chicago rivers. Apparently he had a small canoe, for he had only one Indian and one Frenchman to paddle it.

I conclude that the report merely shows the canoe could and did go up the Desplaines river and across the portage to Chicago in a time of flood.

3717 Coming to Darby, who is referred to in the record by Alvord at page 237 (Abst., 104), and subsequently by other witnesses for the Government; the map published as a frontispiece to Darby's tour from the City of New York to Detroit in 1818, published at New York in 1819, shows the portion of the United States beginning about the middle or western boundary of Lake Michigan and Lake Huron on the north, and to about the line of the Hudson river projected north and south on the east, and approximately the southern boundary of Kentucky on the south.

3718 The southern portion of the map purporting to portray the country around the south end of Lake Michigan and vicinity and to the Mississippi river is not accurate.

Objection that the witness has not qualified himself to check up the topography or geography.

The WITNESS (continuing): I am as familiar with the geographical conditions throughout Illinois and this part over to the Mississippi as an intelligent man would be expected to be.

The map represents the Chicago river as rising in Wisconsin, and I would say approximately in the neighborhood of Milwaukee.

No south branch of the Chicago river is shown at all.

The Plein rises just south of the northern boundary of Illinois, inland a considerable distance from the lake.

The Fox river, apparently, although the name is not
3719 given, rises far up in Wisconsin, over one-third the distance from south to north of Lake Michigan.

It is an appreciable distance from the Chicago river at the nearest point. What evidently stands for the Kankakee river, but unnamed, lies far to the south of Lake Michigan

and rises in north central Indiana far from the St Joseph river.

There is no scale of miles accompanying the map, but basing my estimate on my general knowledge of distances in this region, I would say about a hundred miles.

Between the source of the Kankakee and the St. Joseph rivers, at a considerable distance from each, is the Calumet, which is represented as a larger stream than either the St. Joseph or the Plein, and as running approximately two-thirds of the width of Indiana from east to west.

The Spoon river is represented as rising in southern Wisconsin not far apparently from the modern Madison and as flowing almost due south to slightly west to the Illinois river at a point due east of Fort Madison, Iowa. There is no Rock river shown on the map. The whole of western Michigan from a point in northern Indiana perhaps two-thirds of the way up the Lower Peninsula is labeled "This part is very imperfectly known."

3720 The eastern boundaries of Illinois as shown on the map, do not agree with the facts. They are represented as touching Lake Michigan only by an easterly projection at the extreme north end of the state. For the rest, the eastern boundary of Illinois lies an appreciable distance to the west of the southern end or western line of Lake Michigan.

Darby was himself a map maker and spent a number of years in Louisiana and made a map of Louisiana and in his book on that territory are testimonials from eminent men concerning the reputation and excellence of that map. Two of them being from Thomas Jefferson and General Wilkinson.

3721 In view of the fact that Darby was a skilled map maker and that map referring to the eastern shore of Lake Michigan, the western part of the State of Michigan, and a portion of the northern part of Indiana, states that it is very imperfectly known and from the other features which I have pointed out, I conclude that Darby had very little knowledge or detailed knowledge of the geographical condition of that particular region.

Said map thereupon offered in evidence. (Copy appears at appendix .....)

Giving special attention to addenda number 2, page 27, of Darby's book, the particular excerpt referring to the Chicago and Illinois rivers and the river Plein, appearing on transcript pages 239 and 240 (Abst., 105-106) of the record, in

which Darby says that "No doubt now remains but that
3722 the Chicago and Illinois rivers afford by far the most eligible natural connection between the northern and southern waters of the United States. * * * The latter stream (Illinois) is formed towards its source by two branches, one of which rises south of Lake Michigan, and the other (River Plein) rises in the flat country west of Chicago, and flowing south, unite to the southwest of the extreme south part of Michigan," and the remainder of that paragraph concluding with the sentence, "The Plein also flows with a very slight current, and the two streams present almost a strait between the Mississippi river and Lake Michigan," as a historian, I would conclude in a general way that Darby's knowledge of this particular region was not exact or detailed.

3723 I would say that some statements in the passage are apparently correct and some are not. For example, he says "The Chicago and Plein intermingle their sources."

I don't understand that the source of the Plein is in the vicinity of the source of the Chicago.

He says further, "The Plein also flows with a very slight current." This, I understand, is not an accurate statement.

3724 A statement by Darby introductory to an editorial from the St. Louis Enquirer says:

> "The following interesting notice decides the long contested problem of a natural water communication between the waters of the St. Lawrence and Mississippi rivers and contains also some items of valuable information."

This statement raises suspicion as to the validity of Darby in the mind of a student. The idea that a single editorial which is obviously a biased one could decide so important a question is little short of absurd.

I refer to the editorial from the St. Louis Enquirer introduced by the United States, appearing on transcript pages 240 to 242. (Abst., 106-107.)

Of that editorial, referred to at page 767 of the transcript (Abst., 320), Professor McLaughlin says in his conclusion:

> "Here we have a statement by a contemporary of a general condition of which he apparently had personal knowledge as far as it at least could be based upon the arrival of boats at St. Louis, and the reputed journey.

Taking all of the passage together, this appears to me
3725 to be very influential evidence to lead the historian to

believe that the river Plein was used in connection with the Chicago as a route for trade and commerce in the early part of the nineteenth century at least."

And he further says on page 768 (Abst., 320), that he could not see

"that there would be any reason for a misrepresentation or mistake. It would be unnatural, in my judgment, that a newspaper in a comparatively small place would make a statement of this kind which could easily be known to be untrue by at least a great many citizens of the place, without any particular investigation, if it were wholly without foundation."

And he further says, on page 768 (Abst., 320), in answer to the question.

"And as to the interest which people who live in St. Louis had in this particular water route? I can not see any influence coming from prejudice of that kind inasmuch as St. Louis was in a very advantageous position on the Mississippi near the Missouri and the Ohio, furnishing that city with unusual means of communication with the east and the south for the transportation of its commodities. Subjecting therefore this source to such criticism as I may be able to give it, it has with me very great weight."

3726 I think Professor McLaughlin rates the editorial too high. He says, "The author apparently had personal knowledge."

It is a matter of common knowledge that newspaper editors write on all sorts of subjects, about only a small proportion of which they are likely to have personal knowledge. McLaughlin qualifies the objection to personal knowledge by "As far at least as it can be based on the arrival of boats and their reputed journey" which refers to the statement, "Hundreds, nay thousands of boats," which latter statement is a great exaggeration, if not entirely untrue.

Professor McLaughlin can see no motive for misrepresentation or mistake. I think the editorial supplies one in part.

3727 The writer assumes to speak for "merchants and statesmen" where he says, "the communication between the lake and the Illinois is a point which will fix the attention of the merchant and statesmen. They will see in it the gate which is to open the northern seas into the valley of the Mississippi and which is to connect New York and New Or-

leans by a water line which the combined navies of the world cannot cut off."

McLaughlin sees no interest or prejudice on the part of the St. Louis people since that town is advantageously located on the Mississippi with good communication with the east and south. The sentence above quoted from the editorial supplies such an interest, as St. Louis would doubtless desire to have still better communication with the east, especially in time of war. The war of 1812 had closed shortly before and for a period of three years and to some extent a much longer period the sea trade of the United States had been cut off.

3728 McLaughlin says, "It is unnatural" for a newspaper to make a statement of this kind which could easily be known to be untrue by many citizens of the place. This does not seem to me to be unnatural. It is common knowledge that newspaper editors are frequently partisan, and that in such editorials, facts of common knowledge are distorted and misrepresented. Also, a newspaper editor can safely rely upon the general lack of information concerning geographical details of a region four hundred miles away. For example, what detailed knowledge does the average citizen of Chicago possess of the falls of the Ohio at Louisville? Furthermore, this editor is arguing for a thing in which all are interested. If the people detect the fallacy in his argument they will have no interest in taking him to task for it.

Careful historians frequently use editorials, but only critically and with caution.

3729 In the nature of things they are hastily written; they deal with matters about which the writer frequently, if not generally, has no first hand knowledge; they are frequently, if not usually, partisan in character. As pointed out, there is every reason for seeking to test it by collateral information and using it with extreme caution unless corroborated.

Checking up this editorial, I find this evidence of inaccuracy. It says:

> "The Chicago and Plein are the drains from these ponds; they have neither falls nor shoals; they have not the character of streams, but of canals; the water hardly moves in their deep and narrow channels."

This is not an accurate statement as applied to the Plein.

3730 Speaking of boats of ten or a dozen tons burden making the passage across from Lake Michigan to the Plein, he says, "Hundreds, nay thousands of boats have been seen at St. Louis, which have made a similar passage."

Still further, he says that "while the State of New York opens a canal of three hundred miles the Federal Government should not be appalled at undertaking one of three hundred rods. It might be dug in the time that a long winded Congressman would consume in making a speech against its constitutionality."

It seems to be those statements could not be regarded as correct.

It seems obvious form the consideration of the editorial that the statement, "Hundreds, nay thousands of boats" applies to boats which have made the passage across from the Chicago to the Desplaines, and applies to a period comparatively recent.

From my general knowledge of conditions at Chicago and the trade of the Illinois country generally in the period preceding the date of the editorial, I would say that this assumption is greatly exaggerated.

3731 Even adopting the interpretation placed upon this passage by the Government witness, I still should regard it as incorrect and extravagant.

I believe that it is extravagant, because during the period from 1763 to 1774 and on in a general way until 1790, such trade as there was between Canada and the western posts, which would include the Illinois country and St. Louis, was chiefly by way of the Wabash route. From 1763 to 1774 the English tried to turn this trade up the Ohio; but with the passage of the Quebec Act in 1774 it fell back into its old channels.

3732 By the "old channels" I refer principally to the Wabash route, which was the chief route between Canada, and the lower Illinois in that period. For the rest, the trade of this country went down the Mississippi river, chiefly having New Orleans as its outlet. From 1804 to 1812 John Kinzie was established at Chicago and came to control the fur trade of the surrounding region He relied mainly on horses in the conduct of this trade as shown by the passage from Wau-Bun. Kinzie was a partner of Forsyth, who was stationed at Peoria, during this period, and it seems reasonable to suppose that there was not much trade by way of the Illinois which was not under Kinzie's control.

The trade of the northwest down to and through the war of 1812, so far as there was any trade during the war, was controlled largely by the British, who would find it difficult to operate through Chicago in that period.

From 1812 to 1816 there apparently was little trade and few traders in this region because of the war.

3733 That brings us to the period of the editorial, and even though we include the period from 1764 it still seems an unwarranted statement to say that thousands of boats have been seen at St. Louis which have made the passage referred to.

3734 I now present further references indicating conditions at or about Chicago and this territory during the period from 1764 to the time the editorial in question was written.

I first call attention to the Illinois Historial Collections, Volume II, Volume 1 of the Virginia Series, edited by Professor Clarence W. Alvord, which contains an introduction of 150 pages consisting of a history of the County of Illinois by Professor Alvord. The Period covered by the volume and history is from 1778 to 1790.

(Reading, page 16, in Roman numerals):

3735 "Besides these settlements of the American Bottom on the Mississippi River, there were in the valley of the Wabash the two important posts of Ouiatanon and Vincennes, the latter of which rivaled the Illinois villages in population and importance; for it was by the Wabash that the principal trade route between the more western posts and Canada ran."

Here there is a footnote reference which cites in support or explanation of this statement: "Benton, The Wabash Trade Route, J. H. U. Studied, xxi; Dunn, Indiana; passim; Craig, Ouiatanon, in Ind. Hist. Soc. Publications, ii; Franz, Die Kolonisation des Messissippi-tales, 199."

To continue the citation then (reading):

"Many smaller settlements were scattered throughout the region; at Peoria on the Illinois river, where lately Jean Bte. Mailhet had revived an older trading post; at St. Joseph on the river of the same name, and at Miami; and here and there smaller groups of French traders might be found in the Indian villages and elsewhere. These smaller posts served only the purposes of trade. Their white inhabitants, being migratory in their habits, either followed the Indians on their periodic

hunts or went from one post to another merely to buy the furs when the Indians returned.

The British Dominion ended with the Mississippi River. On the Western bank were other French villages such as St. Louis and Ste. Genevieve, belonging
3736 to the Government of Spain. They did not differ greatly in character or population from those of the British shore, but since the rule of the Spaniard was on the whole more congenial to the Gallic temperament, many of the more progressive settlers from the eastern bank had made their homes there during the last decade, and the Spanish bank enjoyed greater prosperity and a more rapid increase of population than did the British, advantages which the events of the succeeding years tended to augment, so that at the end of the period under review the Spanish shore had profited by the misfortunes of the neighboring villages.

Most of the French of the Western posts came from Canada, with which country they retained constant communication through trade and exchange of messages on family affairs. Very few had come directly from France and the number from southern Louisiana was relatively small. Here in Illinois and on the Wabash which under both the French and British regime were subject to the same jurisdiction, they had lived for one or two generations, engaged in the pursuits of trade and the cultivation of their small farms."

Now I omit to page 27, Roman, of the same article (reading):

"The foregoing descriptions of conditions in British Illinois would be far from complete without an account
3737 of one very important element of society. No sooner had the news gone forth that the land to the north of the Ohio river had been ceded to England by the French than the merchants of the seaboard colonies began to compete for the fur trade of the region in a way that had been impossible hitherto. Up to this time the principal trade in the Illinois had been conducted by Canadian and Louisiana merchants, the English colonists having found their way north of the Ohio, only just previous to the outbreak of the last war. But now the opportunity was opened to the eastern merchants and they eagerly seized upon it, thus bringing on a commercial war for trade of the Ohio and the Mississippi. In this

the merchants of the English colonies had one decided advantage, since they could deliver goods at the villages of the Illinois cheaper than the same could be purchased and brought by way of the lakes and the Wabash or up the Mississippi."

In making this last statement Professor Alvord evidently had in mind the use of no other route than that up the Mississippi or the one by way of the Wabash.

Then follows an account of the British invasion, with the names of the chief merchants and the houses they represented, such as Morgan, Kennedy, and so forth.

3738 (Reading) page 29, Roman:

"In the first years of the British rule it looked as if the Ohio river would become the great trade route of the region and supplant the older and, with the French, more popular waterways to New Orleans and Canada. Even the British government seems to have approved at first this attempt to turn aside the trade from its older channels, for in 1769 the colonial governments were empowered to appoint officers to superintend the Indian trade, and Fort Pitt and the Illinois were assigned to Pennsylvania. Thus the Indians north of the Ohio became accustomed to Fort Pitt as the seat of authority in matters in which they were vitally interested."

And I omit again approximately a page and read from page 30, Roman numerals (reading):

"Although there was at times considerable complaint against the British commandants by the merchants and land traders, these were generally favored more than the French inhabitants or the Canadians, until the passage of the Quebec Act in 1774, which united the Illinois territory with the province of Quebec and annulled any special favors and privileges which the merchants from the east may have enjoyed. This act and the cancelling of the land purchases, which proved the intention of the British government to carry out the principles enun-

3739 ciated in the Edict of 1763, were discouraging to the enterprises of the representatives of the Eastern colonies, and from that date their number in the Illinois began to decline and trade turned back to the older channels."

In the statement last read the reference is obviously primary to the Wabash channel and possibly the other, down the Mississippi to New Orleans. So far as the trade between

the Illinois country and Canada is concerned, to the former passage by way of the Wabash.

(Motion to strike out conclusion of the witness; passages speak for themselves.)

(Motion by counsel for defendant to strike out all the conclusions of the complainant's witnesses on the same ground.)

3740 Professor Alvord wrote that article, according to the preface, in May, 1907.

I now call attention to the volume entitled The Illinois Country by Clarence Edwin Carter, which has heretofore been identified and used in the case.

3741 Carter was a teacher in The Illinois College at Jacksonville and a graduate student in the University of Illinois when this work was written; it was done in connection with work at the University. In his preface he acknowledges his obligation to Professor Greene, the head of the History Department, and especially to Professor Alvord, whose intimate knowledge of the field has been of material assistance throughout his study.

3742 This book won the Justin Winsor prize of the American Historical Association for 1908. These prizes are only open to men who have not yet acquired a broad reputation for publications; that is, to younger men in the field of historical research. Carter's work would be regarded as that of a specialist in the field of American history, done under the direction and oversight of specialists. For the rest it would be judged on its merits the same as any other work. It seems to me to be a very excellent study.

Professor Charles H. Hull of Cornell University is the chairman of the committee which awarded this prize; the other members are men chosen for their reputation as historians in the field of American history and their ability to judge essays, and they passed on and approved this production.

3743 Speaking from memory, the privilege is reserved of not awarding this prize in any year unless the best essay submitted comes up to a proper standard of historical excellence.

Objection to last statement, not the best evidence.

3744 I first call attention to Chapter 5 of Carter's volume, pages 77 to 103, the title being, "Trade Conditions in the Illinois Country, 1765-1775." The part on pages 81 and

82 of Carter has been read into the record by Mr. Lee, at transcript pages 3550-3552 (Abst., 1343-1344).

I call attention further to the citation on page 86 (reading): "It had been expected that the Illinois villages would be the center of trade for the English side of the upper Mississippi valley," and so forth, which appears at transcript pages 3553 to 3554 (Abst., 1345-1346).

3745 I read footnote 32 on page 88 (reading):

"Gage to Hillsborough, November 10, 1770, P. R. O., Am. and W. I., vol. 125; Hutchins, 'Remarks upon the country of the Illinois, 1771,' MS. in Hist. Soc. Pa. Library. It may be noted that during the French Regime the French-Canadians traded extensively in this region. See Gage's 'Report on the state of the government of Montreal,' Can. Const. Docs., 1759-1791, 69-72."

I now read from page 89 (reading):

"This state of affairs continued throughout the greater part of the period, although it was probably modified to some extent after 1770. In answer to a number of vigorous protests from General Gage, O'Reilly, the Spanish Governor of Louisiana, issued an order to all the commandants in that colony to prohibit
3746 the inhabitants crossing the river in the pursuit of trade and whenever any excesses were committed to give satisfaction to the English commandant according to the laws of nations."

I refer to the next paragraph on page 89, beginning "During the first years of the British occupation," which appears in the record pages 3555 to 3558 (Abst., 1346-1348).

I read further from page 93 (reading):

"In 1768 some steps were taken toward the better regulation of the trade. In that year Captain Forbes, the commandant at Fort de Chartres, issued a placard forbidding the traders to send any peltry down the river without informing the commandant of the number of packs, and at the same time giving a bond of two hundred pounds sterling that they would land them in a British port. At the same time General Gage served notice on Governor Ulloa of Louisiana to prohibit the inhabitants of that province from going up the Illinois, Ohio, and Wabash rivers. The commandant at Fort de Chartres was then given directions to scour the river with armed
3747 boats, and to make prisoners of all persons acting con-

trary to the order of Don Ulloa and to carry them to Fort Pitt."

I now refer to the excerpt on page 93 of Carter, beginning, "Conditions, however, grew no better as time went on," appearing at transcript pages 3558-3559 (Abst., 1348), and to the citation from Carter, page 94, record at transcript pages 3563 to 3566 (Abst., 1350-1352).

I now read from Carter, page 99 (reading):

"At one time it was the hope of such men as Gage, Johnson, Haldimand and Hillsborough that the opening of the Iberville River would prove feasible, thus enabling English vessels to reach the British ports of West Florida through lakes Maurepas and Pontchartrain without going by way of New Orleans. This would necessitate the maintenance of a post at the junction of the Iberville and Mississippi rivers in order to turn English boats into the proposed channel. Numerous surveys were made and at one time the work of clearing the channel was actually begun.

None of these projects, however, was ever adopted.
3748 One of the principal reasons for this apparent neglect may well be summed up in a statement by Hillsborough, who appeared by 1770 to have given up the hope of any immediate advantages from the West. He declared in that year that under existing conditions, 'Forts and Military Establishments at the Mouths of the Ohio and Illinois rivers, admitting that they would be effectual to the attainment of the objects in view, would yet, I fear, be attended with an expense to his Kingdom greatly disproportionate to the advantage proposed to be gained.

The matter of expense was not the only reason why the government refused to adopt any of the schemes suggested for the betterment of western conditions. The ministry had in mind a different plan, which if carried out would have completely changed the situation. The idea of the conquest of Louisiana from Spain was kept in mind during the greater part of the period under consideration and received more serious thought than perhaps any other western plan. Much of the correspondence between Gage and Brigadier Haldimand, the English commander in West Florida, related to the best method of attacking New Orleans, and many official and private letters also contained expressions favorable

to such a move. In 1770-1771, when the Falkland Islands dispute was about to drag England and Spain into war,
3749 the opportunity had apparently come for the proposed conquest. Early in 1771 Secretary Hillsborough issued orders to Gage in New York to mobilize an army and prepare for an immediate descent upon New Orleans by way of the Ohio and Mississippi rivers. Gage's preparations, however, were never completed, for the question at issue was settled peacefully.

In the beginning Great Britain had hoped to realize in the development of the fur trade one of her chief returns for taking over the western country. But her traders found the French hard to dislodge. The character and methods of the French fur traders appealed to the Indians, and England's failure to realize more from the trade may be traced in part to this cause. Moreover, that portion of the western trade which went to the English centered in a large degree in a foreign port. With the means at hand attempts were made to check this tendency, and numerous plans were projected to induce a change of conditions, but no expensive measures were undertaken. The problem of the western trade confronted the ministry at a most unfortunate time, for during the decade following the treaty of Paris questions of graver importance were arising and demanding immediate attention. The necessity became apparent of increasing the revenue for purposes of imperial defence and of colonial administration, and the question of the readjustment of all the relations between
3750 the mother country and the colonies was thereby introduced. When the colonial opposition to Parliamentary taxation manifested itself in the outcry against the Stamp Act and other revenue measures, the expenditure of large sums of money on new projects was out of the question. Instead of seeking new schemes upon which to expend money, every opportunity was seized upon to curtail expenses. We find that not only was the plan for the management of Indians outlined in 1764 never put into full operation because of the added financial burden which it would entail, but also that in 1768 the management of the trade was transferred from the crown to the colonies in order that the budget might be further reduced. The western question had become subordinated to that of the empire. Furs were important

to the manufacturing monopoly of Great Britain, but at this time of rising discontent in the colonies any new projects entailing further expense were out of the question."

I call attention to the citation from page 141 of Carter, beginning, "There was still another important reason," and so forth, ending "with any advantage to England, unless New Orleans were procured," appearing on transcript page 3567. (Abst., 1352-3.)

I now read from Carter, page 141. (Reading):

"In a communication to Secretary Hillsborough in 1770, in which he argued at length against the establish-
3751 ment of settlements or of any additional military posts in the West, General Gage declared that no further time or money should be expended on that country, and particularly the Illinois country, because it would be of no conceivable 'advantage to the King's subjects, unless New Orleans was added to His Majesty's Possessions.'

In the same year Lord Hillsborough himself mentioned one of the chief objections which he considered to 'lie against colonies in the Illinois with a view to the Peltry Trade, which is the peculiar Commerce of that Country.'"

I call attention further to the citation from page 142 of Carter, beginning with, "This Commerce," and concluding, "Can have any effect under such circumstances," appearing at transcript page 3568 (Abst., 1353).

I now read further from Carter, page 142. (Reading):

"In this connection it should be noted that throughout this decade there were serious thoughts of an attack upon Louisiana and New Orleans should a war with Spain afford the opportunity. One of the reasons offered by Governor Franklin in 1766 for the establishment of a colony in the Illinois country was that such a colony would enable the English to get possession of the whole of Louisiana 'should a future war make it expedient.' We find Gage himself discussing with General Haldimand, who was stationed in West Florida during the latter half of this period, possible plans for an attack in case war should be declared.

3752 In 1770 the cherished opportunity seemed to have arrived. In that year the dispute between England and Spain over the possession of certain of the Falkland Islands, lying near the Strait of Magellan, brought the

two nations to the verge of war. Hillsborough evidently expected war, for in January, 1771, he communicated secret instructions to Gage in New York to mobilize an army and to prepare for the invasion of Louisiana. He commissioned Gage as commander of the invading forces and instructed him to use his own judgment as to the time and method of attack. Gage replied that he would at once assemble a body of troops and prepare for the invasion. He further declared his intention of approaching Louisiana and New Orleans by way of the Ohio and Mississippi rivers, and actually sent reinforcements to Fort de Chartres. Soon after the despatch of Hillsborough, however, Spain acceded to the demands of England, and the attack upon New Orleans was given up."

I call attention to a citation from Carter, page 11, beginning, 'The relation of the Illinois Country to Louisiana was economic as well as political," and concluding, "together with cattle and hogs they frequently shipped to the New Orleans market," appearing on transcript page 3550, (Abst., 1343-44).

3753 Footnote 33 on page 11, of Carter, refers to Winsor, Narrative and Critical History of America, Vol. V, page 53.

Turning to that volume I find the following, under the chapter headed "Canada and Louisiana." (Reading):

"During this uneventful time the little colony grew and the settlers enjoyed a moderate degree of prosperity. A contended population of about two thousand whites, to whom grants of land had been freely made for purposes of settlement or cultivation, was mainly engaged in agricultural pursuits. Side by side with them the natives were gathered in villages in which were established Jesuit Missions. The fertile soil readily yielded to their efforts at cultivation more than they could consume, and each year the surplus products were floated down to New Orleans. Bossu asserted that all the flour for the lower country came from Illinois. Vaudreuil, before leaving the colony for Canada, reported that boats came down the river annually with provisions; but as late as 1744 he still harped on the discovery of new copper and lead mines. Of the real agricultural value of the country there could not at that time have been any just appreciation."

Footnote 2 on page 53, of Winsor, reads:

"We receive from the Illinois," he says, "flour, corn, bacon, hams, both of bear and hog, corned pork and wild beef, myrtle and beeswax, cotton, tallow, leather, tobacco, lead, copper, buffalo wool, venison, poultry, bear's grease, oil, skins, fowls, and hides. (Martin's History of Louisiana, i. 316.)"

3754 I now call attention to the Journal of Jacob B. Varnum of Petersburg, Virginia, which is a typewritten manuscript belonging to the Chicago Historical Society. A letter belonging to the Chicago Historical Society gives the history of this document, and is as follows:

Objection, incompetent, irrelevant and immaterial.

3755 The WITNESS (reading):

"Dated Boston, May 16, 1907. Lib'n of the Chicago Historical Society. Dear Sir:—I respectfully enclose sample sheets of the 'Varnums of Dracutt,' a work of 308 pp. with 23 illustrations and 5 maps," and so forth.

3756 The letter goes on to describe the book. On the paper apparently in the handwriting of Varnum, the publisher, appears this notation (reading):

"The sketch of Maj. Jacob B. Varnum, who was among the U. S. officers who helped bury the bones of the victims of the Fort Dearborn massacre. I furnished in another form to Prest. Mason of your society who was a classmate of mine at Yale. Signed Jon. Varnum."

The manuscript purports to have been made out by Varnum during the Civil War, from papers and manuscripts in his collection, during the siege of Petersburg, Virginia. He expressly states that he has gone over his papers and manuscripts, as I recall it.

3757 Varnum was the government factor at Fort Dearborn from 1816 to the abandonment of the factory in 1822. This typewritten copy of that manuscript is a part of the Historical Society's collections. I think there can be no reasonable question that the manuscript referred to in this letter is the one I am introducing.

Objection, not sufficiently identified; not such a document as historians are entitled to use.

The WITNESS (continuing): I read from the manuscript entitled "Journal of Jacob B. Varnum, of Petersburg,
3758 Virginia," the entry beginning June 1819. (Reading):

"Some gentlemen of the place having business in Detroit, urged me to accompany them, and having no busi-

ness at this inactive season of the year requiring my presence here, I felt a strong desire for a change. Our summers were exceedingly dull and solitary here. We have nothing to exercise our bodies or divert our minds. The hunting seasons is necessarily suspended, and even the Indians are too inactive to leave their little plantations. During the hot months we have little else to do than fight mosquitoes. I had passed two or three summers in such listless idleness that the desire for a change entirely possessed me, altho' fully aware that a ride of between 300 and 400 miles thro' the wilderness in fly time would not be a very pleasant trip, I determined on trying it and made preparations accordingly. About the 10th of June we commenced our journey, going via Ft. Wayne."

Then follows an account of the journey from Chicago to Detroit.

3759 I read this to show that as stated in the citation it was exceedingly dull at Chicago in the summer time, the period to which Varnum refers, which I think has some bearing upon the complainant's proposition that there were some thousands of boats going by way of Chicago to St. Louis in the period indicated in the St. Louis Enquirer editorial.

3760 I read from the same manuscript the citation under date 1821, on the abandonment of the government factory at Chicago. (Reading):

"Since the renewal of the factory here the trading with the Indians had hardly been sufficient to justify its continuance. Many formerly traded at this point who now having bought hunting grounds more remote from the 'Chemokomans,' as they term the Americans, and their numbers being also greatly reduced by the late war, it has resulted in the business falling off more than one-half. Under these circumstances, actuated by the belief that the factory could not sustain itself, I thought it my duty to recommend to the superintendent its discontinuance or removal to some point more remote from the settlements, and named St. Peter's as a suitable point. Several communications passed between us and on the 30th of October, he authorized me to close the establishment and remove to that place early in the coming spring. That change did not go into effect, for reasons that will appear."

The reasons appearing for his not making the changes di-

rected were that another man was sent by the Government to close up the affairs of the factory, due, as Varnum
3761 states, to the prejudice that Senator Benton had excited toward the old agents of the government.

Under the heading September 25, 1821. (Reading):

"Received a letter from Brother Joseph, announcing the distressing event of the decease of both Father and Brother James the same day, Sept. 11, 1821. The balance of the year passed off as usual—trading with the Indians and occasional excursions to the hunting grounds. The latter part of the year I was winding up affairs preparatory to removal. I did not work very actively, however, for after the meeting of Congress, I noticed that Col. Benton in the Senate made a furious attack against the whole matter of Indian trading—representing that it benefited no one but those engaged in carrying it on."

Under entry of August 17, 1822. (Reading):

"Having turned over all the factory property to my successor, and my wife having embarked some days since by water around to Detroit, my mission in Chi-
3762 cago was ended and in company with Lt. Morris and guide, I left for a second journey on horseback to Detroit, intending to take the direct route thro' the woods."

I next refer to the article "Reminiscences of Early Days on Mackinac Island, by Elizabeth Therese Baird, 14 Wisconsin Historical Collections, page 17. Complainant has heretofore identified this volume.

Doctor Thwaites, of the Wisconsin Historical Society, identifies Mrs. Baird in a footnote on pages 17 and 18. (Reading):

"The author of these reminiscences was born at Prairie du Chien, Wis., April 24, 1810, the daughter of Henry Munro Fisher, a prominent fur trader, of Scotch ancestry, in the employ of the American Fur Company. Her mother was Marienne Lasaliere, a daughter of Madam Therese Schindler (wife of Georgé Schindler), by her first husband, Pierre Lasaliere. Madam Schind-
3763 ler's mother was Migisan (although called by the French, Marie), the daughter of an Ottawa chief, Kewinaquot (Returning Cloud). In 1824, when but fourteen years of age, Miss Fisher was married at Mackinac Island, where she had spent the greater portion of her youth, to Henry S. Baird, then a young Green Bay lawyer. Mr. and Mrs. Baird removed at once to Green Bay, where

Mr. Baird (born in 1800) died in 1876, and Mrs. Baird, November 5, 1890.

3764 Mrs. Baird was a woman of charming personality and excellent education, proud of her trace of Indian blood, and had a wide acquaintance with the principal men and women of early Wisconsin. Having traveled and seen much in pioneer days, and being gifted with a retentive memory which did not fail her until the last few weeks of her long life, she was a rare source of information to western historical students. The present Editor frequently drew upon her memory, for data with which to annotate these collections. To the columns of the Green Bay State Gazette, between December 4, 1886, and Nov. 19, 1887, Mrs. Baird contributed a series of papers relating her early experiences on Mackinac Island and in Wisconsin territory. The present article is a collection of such of these papers as referred to Mackinac,—condensed at a few points, and otherwise edited, in accordance with an agreement between Mrs. Baird and the Editor, the former contributing for this purpose some information which did not appear in the series as originally published in the State Gazette. It is hoped that space for the remainder of Mrs. Baird's reminiscences —those relating especially to Wisconsin—may be found in Vol. XV of these collections.—Ed."

Turning to the article on page 24 of the volume I read (reading):

"In the fall of 1815, Madame Marie Chandonee, nee
3765 Chapoton, with her infant son, left Detroit to join her husband, Jean B. Chandonee, in Chicago. When she reached Mackinac, her child was too ill to travel further; and when he recovered, it was too late that season to resume the journey. Although it was only October, no vessel would brave the autumnal storms, and there was no alternative for Mme. Chandonee but to make Mackinac her home for the winter with her husband's aunt, Mme. Therese Schindler. Spring came and went, and not until the middle or last of June, 1816, did the first vessel present itself for this route. Then Mme. Chandonee, with her little one, accompanied by my mother and me, embarked again for Chicago. The vessel had the then familiar load of pork, flour and butter. I know not how long she was in going or coming; I only know

she was one month making the round trip, which was thought to be doing well.

There were no ports on the west side of Lake Michigan, at which to stop, but when we reached Chicago, there was considerable delay in getting into the river. It was a very narrow stream, with high banks of white sand. Not far up the river stood Fort Dearborn, only a few rods from the water's edge. Directly opposite the Fort was the Kinzie homestead, with all its comforts. The house was a large one story building, with an ex-
3766 ceptionally high attic. The front door opened into a wide hall, that hospitably led into the kitchen, which was spacious and bright, made so by the large fire-place. Four rooms opened into the hall, two on each side, and the upper story contained four rooms. The fare of that house was all an epicure of the present day could desire, including game and fish of all sorts; and then the cooking was done by open fire place, in its best style.

We were entertained by the hospitable inmates of this pleasant home, Mr. and Mrs. Kinzie, father and mother of John H., being old friends of my mother. Mme. Chandonee was a stranger to the family; but her husband was an inmate of the household, being there in the employ of the government. The establishment consisted of Mr. and Mrs. Kinzie, two sons and two daughters, and the men and women retainers, who seemed to be many. This home, the garrison, and the home of Jean Baptist Beaubien, were all there was of Chicago at that time."

I here omit what follows in the way of description of conditions and the experiences of the visitor at Chicago, and continue to read again on page 27 (reading):

"We remained in Chicago for some time, the vessel master seeking for a cargoe which was not secured. It was too early for furs, so finally the vessel had to take on a ballast of gravel and sand. Besides ourselves, the party who took passage on this vessel, were Major Baker
3767 and his wife and daughter. The Major was then on his way to Green Bay to take command of Camp Smith. The daughter was an invalid and had what is commonly called 'fits.' She was seized with one in the cabin while I sat by her; and such an impression did her fright make that I have never forgotten Miss Jerusha Baker.

Pursuing our journey northward we coasted along the east side of the lake, stopping where we could, to secure,

if possible, a cargoe; but failing, arrived at Mackinac with the same ballast with which we started from Chicago."

The WITNESS (continuing): I cite this as bearing upon the amount of trade at Chicago at the time of Mrs. Bairds' visit in 1816. It shows that the captain of the vessel found it impossible to secure anything by way of cargo for return voyage, and had to ballast his vessel with sand and gravel.

3768 I now refer to DuPratz' History of Louisiana, the Chicago Historical Society volume, printed in London in 1774, which has heretofore been identified and used. (Reading, page 182):

"In those countries there is a river, which takes its name from the Illinois. It was by this river that the first travelers came from Canada into the Mississippi. Such as come from Canada, and have business only on the Illinois, pass that way yet; but such as want to go directly to the sea, go down the river of the Miamis into the Wabache, or Ohio, and from thence into the Mississippi."

I have examined the extract from Graham and Philips' report, appearing in Alvord's direct, transcript page 254, Abstract page 113, with the view of determining the light which it throws upon the question of the capacity or use of the Desplaines river for boats.

3769 Q. What are your conclusions?

Objection; no proper foundation; report speaks for itself.

A. Graham and Philips were sent by the government in 1819 to make a survey of certain boundary lines. (See Enquirer editorial, quoted transcript pages 240-242, Abst., 106.) Their commission had nothing to do with the question of Canals, at least that is suggested by the report itself.

3770 See transcript page 254 (Abst., 113), first paragraph, and transcript 258 (Abst., 116). But they saw fit, whether at the instigation of Benton or not, to include a report to the government on this topic.

Motion to strike out the reference to Benton.

The WITNESS (continuing): They point out that the Desplaines river in high water is from four to six feet deep and in places a mile wide; and in low water is dry or reduced to a gutter. (See transcript page 255, Abst., 114.)

The period of high water is brief, while that of low water lasts for a considerable portion, if not the greater part of

the year, during which period, according to the report, the Desplaines is dry, or a gutter. After the canal is cut from the Chicago to the Desplaines, the report points out that two difficulties will still occur, one that the Desplaines during half the year does not contain enough water to float a boat. (See transcript page 256, Abst., 115.)

3771 It is evident from the report that boats sometimes used the Desplaines, but that for the greater part of the year it could not be used, and that either the channel must be deepened or the canal must enter at Mount Joliet in order to secure a navigable highway. This latter would cut out the greater portion of the Desplaines.

My knowledge as to the relative length of time during which there was not sufficient water in the river, is based upon the report and in part upon other references. The report itself states.

Motion to strike out last part of answer.

The WITNESS (continuing): The report itself states (Rec., 256; Abst., 115), that "during half of the year the Plein does not contain water enough to float a boat." That is in part the basis of my answer.

I have examined Drown's history of Peoria, and the excerpt referred to by Alvord in his direct, transcript at 301 (Abst., 138).

3773 I regard Drown's work as a history of flimsy character. Drown himself says in his preface, page 2 (readings):

> "Unwearied efforts and untiring labor have been exerted to make it what it is, and what it is, with all its imperfections, is stamped upon its face. That it is entirely free from errors, is not expected; but it is believed to be as correct as, in the nature of things, it is possible, in the first instance, to make such a book, out of an unorganized mass of materials," (and this is italicised), "collected from every quarter, oral and written. Undoubtedly, many omissions will be observed of matters necessary to give completeness to the work. I shall be glad to receive from those who may notice errors, or omissions, the sum of their knowledge for future use, there being wisdom, generally, in a 'multitude of counsellors.'"

3774 The book may properly be regarded in the light of source material of a certain sort, and used with great caution as such by a historian. Its statements should be cor-

roborated by other sources, otherwise he would regard them as tentative or suggestive only. A mere statement in a book called a History does not establish a proposition as having occurred. It is necessary to determine how much the author knew about the facts concerning which he speaks, what his training was and what his prejudices may have been; in short to apply the customary historian's tests. If the book fails to meet these it will be open to suspicion to the extent to which it fails to meet such tests.

3775 I should say that the statement in Drown as to Hamlin's use of boats on the Illinois and Desplaines rivers, is either true or false, and the complainant in this case has urged that it is true. If it is true as to the use of the Desplaines in the way pointed out in the citation, it is equally true as to the use of the Illinois river after the date which Hubbard gives as that in which he abandoned the use of the Desplaines and the Illinois with reference to the operations of the American Fur Company. That is, whatever Drown says about the use of the Desplaines will have, it seems to me, the same validity as what he says about the operations of John Hamlin in 1825 and following. Hubbard pointed out that he gave up the use of the Desplaines before 1825. According to Drown the American Fur Company was still operating on the Illinois below the Desplaines at that time.

Motion to strike out as argument.

377 The WITNESS (continuing): That fact appears from this statement in Drown, page 84. (Reading):

"In 1832, an Indian Agency was opened and established here by the government, of which Judge Latham was appointed Agent, in place of Maj. Graham of St. Louis, where it had heretofore been kept. John Hamlin, Esq., was a clerk in and kept a branch of the American Fur Company's store in this place, in one of the buildings in the center of the view between Water street and the Lake—the building from the right, just below the Inn sign post. In this store were kept Indian commodities chiefly. A portion, however, was adapted to the wants of the citizens, who, at this time were few. Mr. Hamlin while thus engaged in this store, exported the first produce to Chicago in 1825."

3778 Complainant's witness, Alvord (Trans., 301-303; Abst., 138-139), has referred to a use that McCulloch has made of Drown. As to whether such a use would add to the weight of Drown's statement, will say if a historian

of an established reputation such as Justin Winsor, adopted such a statement and gave credence to it, there would be some implication that it was correct. It seems to me that in this case no such implication follows; McCulloch has not such a reputation as Winsor. Any historian would much prefer to go direct to Drown to form his conclusions rather than depend upon McCulloch.

Motion to strike out; qualifications of witness to pass on McCulloch not shown.

The WITNESS (continuing): McCulloch was a resident of Peoria, and once delivered a lecture before the Chicago Historical Society on Early Days of Peoria and Chicago.

3779 Further than that I have never heard of him. The fact that he had delivered a lecture before the Historical Society would not necessarily give weight to his statements. The Historical Society does not stand sponsor for anything delivered before it in such fashion. The statement that McCulloch relied on Drown, so far as I can determine, rests on an inference only. In his lecture he gave no indication of the source of his authority. Assuming that he did rely on Drown, he has not used the authority accurately. He added certain details and made one statement, which differs from that which appears in Drown. I refer to the use of Mackinaw boats where Drown spoke of Durham boats.

3780 The letter of Robert Dickinson to the Honorable Robert Hamilton, appearing on transcript pages 210 and 211 (Abst., 89-90), beginning "The Communication between Mackinac and the Mississippi is carried on by two routes, the one by Chicago, the other by the Fox and Ouisconsin Rivers, the latter is preferred on account of the shortness of the carrying place," does not throw any light upon the use of the Desplaines river. My recollection is that the length of that portage varied somewhat from season to season, but in general it was from one to three miles.

Referring to DuPratz, to whom I have referred, and of whom Mr. Alvord has said (Trans., 152; Abst., 65) his standing as an author is most excellent, being a scholar and a historian and a man of good observation, and the passage he read from page 182 beginning

> "In those countries there is a river, which takes its name from the Illinois. It was by this river that the first travelers came from Canada into the Mississippi. Such as come from Canada, and have business only on the Illinois, pass that way yet; but such as want to go

directly to the sea, go down the river of the Miamis into the Wabache, or Ohio, and from thence into the Mississippi."

3782 I have studied the excerpt. The translator (whose name does not appear) makes these statements which concern the author's standing and accuracy.

Objection, not shown that translator was qualified to speak on the subject.

The WITNESS (continuing, reading page 1):

"But whatever opportunities our author had of gaining a knowledge of his subject, it must be owned, that he made his accounts of it very perplexed. By endeavoring to take in everything, he descends to many trifles; and by dwelling too long on a subject, he comes to render it obscure, by being prolix in things which hardly relate to what he treats of. He interrupts the thread of his discourse with private anecdotes, long harrangues, and tedious narrations, which have little or no relation to the subject, and are of much less consequence to the reader. The want of method and order throughout the whole work is still more apparent; and that, joined to these digressions, renders his accounts, however just and interesting, so tedious and irksome to read, and at the same time so indistinct, that few seem to have reaped the

3783 benefit of them. For these reasons it was necessary to methodize the whole work; to abridge some parts of it; and to leave out many things that appeared to be trifling. This we have endeavored to do in the translation, by reducting the whole work to four general heads or books; and by bringing the several subjects treated of, the accounts of which lie scattered up and down in different parts of the original, under these their proper heads; so that the connection betwen them, and the accounts of any one subject, may more easily appear."

The extract from DuPratz, cited by Alvord, is not accurate. The first travelers of whom we have any record who came from Canada into Mississippi, were Joliet and Marquette, who came by the Fox-Wisconsin route. Assuming that DuPratz meant to state generally that the early travelers between Canada and the Mississippi region came by this route, it has no great significance as to the Desplaines, because travelers from Canada to the Mississippi who came to the

3784 lower end of Lake Michigan had a choice of two routes, by Chicago and over to the Illinois, or by the St. Joseph

and the Kankakee. DuPratz merely says that there was travel between Canada and the Mississippi by way of the Illinois; he makes no statement about the Chicago or the Desplaines. DuPratz, having spent some time in Louisiana, would probably have such knowledge as was current in Louisiana at the time of his residence, concerning the route or routes by which communication between Canada and Louisiana was carried on. It seems to me apparent, from the narrative, that he had no personal or detailed knowledge as to the use of the Illinois river and that portion of the route.

3785 I call attention to page 181. (Reading):

"The country of the Illinois is extremely good, and abounds with Buffalo and other game. On the north of the Wabache we begin to see the Orignaux; a species of animals which are said to partake of the buffalo and the stag; they have, indeed, been described to me to be much more clumsy than the stag. Their horns have something of the stag, but are shorter and more massy; the meat of them as they say, is pretty good. Swans and other water fowl are common in these countries."

It is evident from this that DuPratz was not himself familiar with the country of the Illinois. He says: "We see the Orignaux on the north of the Wabash," and then in describing this animal it is clear he depends on the evidence of others. He says. "They have indeed been described to me." "The meat of them is as they say, is pretty good." My conclusion is that he himself had not been in the country north of the Ohio. DuPratz furnishes merely a second-hand statement to the effect that travelers passed from Canada to the Mississippi by way of the Illinois, but those who go to the sea use another route by the Wabash, and it indicates

3786 nothing as to the Desplaines or how they got from Lake Michigan to the Illinois. The frontispiece map of DuPratz is not geographically accurate with reference to the Illinois and Chicago rivers and the region north of the Illinois, particularly the passage from Lake Michigan to the Mississippi by way of the Fox river route. This, to me, is a further indication as to lack of first-hand knowledge on the part of Du Pratz of the country to the north of the Ohio. It shows a river at the southwest corner of Lake Michigan, which evidently we would call the Desplaines today. It appears to rise some distance to the south of the southernmost point of Lake Michigan. It is not clear where the river which may stand for the Calumet or perhaps the south branch of the

Chicago ends, and the other river which I would identify with the Desplaines begins. The map does not accurately
3787 represent the conditions as to water connections between the Illinois and the lake by way of the Chicago and the Desplaines or the Calumet and the Desplaines as the case may be.

In Alvord's testimony (Trans., 260; Abst., 117) there is a reference to "A Pedestrious Tour of 4,000 Miles through the Western States and Territories during the winter and Spring of 1818, by Eastwick Evans, Concord, New Hampshire, 1819," and a statement quoted from Dr. Thwaites as to who Evans was. There is a statement from Evans (Trans., 261; Abst., 118), as follows:

> "There is a communication, between the Illinois River and Lake Michigan, by way of Chicago river and two small portages. The Illinois strikes the Mississippi about twenty miles above the Missouri, and its principal branch runs in the direction of Detroit."

3788 Evans describes the Illinois country generally. It does not appear from his account what parts he went through nor that he went up the Illinois river. It cannot be stated, I suppose, that he did not, but I find no evidence to show that he did. I therefore regard his statement as secondary.

3789 On page 179 of the Chicago Historical Society, Concord, New Hampshire, 1819, copy of Evans, I find the following:

> "The principal river in Indiana is the Wabash. The banks of this river are high and fertile, and its aspect very beautiful. It is navigable, at certain seasons of the year, upwards of six hundred miles. White, Theakiki and Calumet rivers are its greatest tributaries."

From that I conclude that if Evans went up the Illinois and was familiar with the country at the south end of Lake Michigan he was not an accurate observer, or at least, a careful recorder of his observations.

At page 223 of the transcript (Abst., 96) appears a letter of Thomas Forsyth to Eaton, in Vol. 11, Wisconsin Historical Collections, page 344, dated St. Louis, September 18, 1814, which gives the list of available Indians, and says that the Ottawas of Lake Michigan in their birch bark canoes can be easily brought down by way of the Chicago and Illinois river.

3790 Very little significance is to be attached to that statement, so far as the use of the Desplaines is concerned.

The birch bark canoe is light and easily carried, and the Century Dictionary says boats large enough to hold four persons weigh sometimes not over forty or fifty pounds; also Indians going out on a war-expedition would not burden themselves with unnecessary baggage. They could come down by way of Chicago and the Illinois without using the Desplaines. It would be possible to carry the canoes the entire distance from the Chicago to the Illinois.

3791 To illustrate the truth of this statement I call attention to Marquette's account of his expedition in 1673 in Jesuit Relations, where he makes light of a portage of twenty to thirty leagues on the upper Missouri. Obviously it would be possible to make the portage from Chicago to the Illinois with similar ease. Would say that it is fair presumption that Forsyth was familiar with the conditions as to the navigability of the Desplaines. From other sources used in this case we know that the Desplaines at the time in question, from September 14th on, was ordinarily very low.

3792 Charlevoix, in a letter of September 17th, considered that the river could not be traveled in a canoe. In St. Cosme, it is said that there was no water in the river except in the spring. Forsyth must have been familiar with this condition, and since he speaks of an expedition this season, the date of the letter being September 14th, I infer he did not expect the Ottawas of Lake Michigan to paddle their birch-bark canoes down the Desplaines. They could come to the lower Illinois easily without actually floating down the Desplaines.

3795 At transcript, page 3714 (Abst., 1408) I stated that two qualifications on Charlevoix were found in Winsor, Vol. 4, page 358. By way of correction, only one is found on that page, and the other is on page 154 of the same volume.

At transcript page 3712 (Abst., 1407) I referred to certain extracts from Winsor's Narrative and Critical History, Volume 4, page 154, concerning Charlevoix. A motion to strike out my answer was made, on the ground that the passage referred to other and later historical works. It seems to me the objection is not valid. The passage on page 154, to which the objection applied, reads (reading):

> "His Historie dela Nouvelle France follows the course of the French throughout the continent, but its more particular Characterization belongs to another chapter."

On page 358, the other reference to which objection was made, I call attention to this comment:

"Shea says: 'Access to state papers and the archives of the religious order to which he belonged, experience and skill as a practiced writer, a clear head and an ability to analyze, arrange and describe, fitted him for his work."

3796 It is extremely improbable that these qualities, to which Shea testifies, would desert him when he came to write his letters, which constitute the volume from which I was reading.

I would refer further to footnote 2 on page 358 of Winsor's Narrative and Critical History, Volume 4, which is a reference to the same paragraph from which I have just read, which says (reading):

"And the first place in time and importance among the contributions to the general history of Canada, of a date earlier than the present century, must be given to this Jesuit's Histoire Et Description Generale de la Nouvelle France avec le Journal Historique d'un Voyage fait par l'Ordre du Roi dans l'Amerique Septentrionale, which was issued at Paris in 1744."

Footnote 2 says with reference to this sentence (reading):

"There were two editions in this year; one in three volumes quarto, and the other in six volumes of small size, with the plates, folded. Cf. Sabin, Dictionary, Vol. III, p. 520," etc.

3797 I now take up volume 6 of this same book to which footnote 2 refers in the edition of 1744, and call attention to the second title page (reading): "Journal D'Un Voyage Fait Par Ordre Du Roi, Dans l'Amerique Septentrionale."

This is the exact volume which is referred to in the footnote which is referred to in the body of the text, to which objection was made on the ground that I was referring to other and later historical works.

Motion to strike out on the ground that the answer has no relevancy to the objection by counsel for complainant.

3798 That letter of Charlevoix is contained in this particular volume to which the footnote refers. This whole criticism is based on these six volumes, of which this is one. These letters were written in 1721 or thereabouts; they were published, however, in 1744 as part of this general work, and the criticism of the author, Stewart, refers to the whole work.

Recurring to the point of trade between 1764 and the approximate date of the editorial in the St. Louis Enquirer, and the weight to be given to the editorial referred to in Darby, I refer to volume 2 again, Historical Society Publications, Indianapolis, and the Bowen-Merrill Company, 1893.

3800 I refer to paper number 8, of this volume, entitled "Ouiatanon, a study in Indiana History. By Oscar J. Craig, A. M., Ph. D. Professor History and Political Economy, Purdue University, Lafayette, Ind. Indianapolis: The Bowen-Merrill Company, 1893."

Have not looked up Mr. Craig further than he appears in this article; he has been referred to as an authority by other historians, among others, Professor Alvord in his introduction to the Cahokia records, on page 16, Roman.

3801 This article consists of a history of the old Indian town which became the French garrison and trading-post of Ouiatanon. It throws light on the subject of trade between Canada and the Illinois country in the period in question (reading, page 327):

"Between 1671 and 1683, the time of the founding of the Confederacy, it is extremely probable that fur traders visited the state, but it was not until the Confederacy was broken up and the Indians had returned and relocated, that trading-posts were established. Ouiatanon, the subject of this sketch, was one of the first of these, on account of its favorable situation. It is located at that point on the Wabash where the lighter barks and canoes that were used in the carrying trade between Canada and the southwest by way of the Miami and the Little Wabash were changed for larger ones to be used on the deeper waters of the lower Wabash and the Ohio.

3802 A reference to the map of Indiana will show that by ascending the little Wabash the portage across the St. Mary's and the Maumee was very short.

This post was to the Indians and fur traders of that day the head of deep water navigation, just as in later years and before the days of railroads, Lafayette, only four miles above, it, was known as the head of steamboat navigation on the Wabash." * * * (Reading page 329):

"The French, in order to counteract the influence of the English and to keep their ascendency over the In-

dians, established a military post at Ouiatanon in 1719 or 1720. Under date of October 28, 1719, Vaudreuil, Governor of Canada, wrote to the Council of Marine." * * * (Reading, page 330): "It is probable that the garrison did not reach the post before 1720. The exact location of this fort has been a matter of much dispute, but a careful investigation of maps and descriptions of the post, as well as the recent finding of material such
3803 as Jesuit crosses, vessels used in church service, belts, buckles and fragments of other military equipments, fix its position beyond a reasonable doubt. The French fort was placed upon the site of the 'sanded' Indian fort already described. Both French and Indian relics are found here, and although the surface of the ground has been considerably changed by the washing of the sandy soil, the general outlines of the fort may yet be distinguished by the careful observer. Port Ouiatanon on the site of the old Indian fort, the Ouiatanon town on the south side of the Wabash river and a few miles lower down, the Kethtippecanunk several miles above and near the mouth of the Tippecanoe river are not always clearly distinguished from each other by writers on early western history.

The description of the fort already quoted from a Canadian record, the description to be given later on by General Scott and by General Wilkinson are accurate when applied to the fort as located above, but will not apply to the other localities.

The first French commandant then at Ouiatanon was Dubuisson, but he was soon succeeded by Francois Morgan, a nephew of the Sieur de Vincennes, already mentioned, who at his uncle's death, succeeded to the title. Francois Morgan, the new Sieur de Vincennes, remained in charge of the fort for several years.

3804 At this time the French ruled their possessions in the new world from two centers, Canada and Louisiana. After Francois Morgan had succeeded to his uncle's title, he was induced by a consideration of three hundred livres, in addition to his salary as Lieutenant on half pay, to transfer his allegiance from the Governor of Canada to the Governor of Louisiana. Leaving Ouiatanon he proceeded down the river to the Indian village of Chipkawkay, and there established a military garrison. This was known for a long time simply as the Fort on the

Wabash. It is not until 1752, that we find the name Vincennes applied to it." * * * (Reading, page 338): "Colonel Croghan, while at Ouiatanon, described it as follows: 'The distance from Post Vincennes to Ouiatanon is two hundred and ten miles. This place is situated on the Wabash. About fourteen French families are living in the fort which stands on the north bank of the river. The Kickapoos and the Musquattimes, whose warriors had taken us, live nigh the fort on the same side of the river, where they have two villages, and the Ouiatanons have a village on the south side of the river. The country hereabouts is exceedingly pleasant, being open and clear for many miles. The soil is very rich and well watered. All plants have a quick
3805 vegetation and the climate is very temperate. This post has always been a considerable trading place. The great quantity of furs taken in the country induced the French to establish this post, which was the first on the Wabash, and by a very advantageous trade they have been nobly recompensed for their labor."

The footnote reference there being to Croghan's Journal, History of Kentucky, Butler (reading footnote):

"From the post Colonel Croghan passed on through the Indian tribes to Detroit, and there the permanent treaty was signed with Pontiac, the preliminaries of which had already been arranged at Ouiatanon.

In Hutchins' Topographical Description the following occurs: 'Ouiatanon is a small stockaded fort on the western side of the Wabash, in which about a dozen families reside. The neighboring Indians are the Kickapoos, Pyankeshaws and the principal part of the Ouiatanons. The whole of these tribes amount, it is supposed, to about one thousand warriors. The fertility of soil and diversity of timber in this country are about the same as in the vicinity of St. Vincent. The annual amount of skins and furs obtained at Ouiatanon is about £8,000. By the river Wabash the inhabitants of Detroit move to the southern parts of Ohio and the Illinois country. This route is by the Miami river to a carrying place, which, as before stated, is nine miles to the Wabash when the river is raised with freshets.'"

3806 I have looked up that reference in Hutchins and it is the same as quoted here.

The same article contains an account of the harrying of the Ouiatanon towns in 1790 by General Scott (reading page 343):

"Many of the inhabitants of this village were French, and lived in a state of civilization. By the books, letters and other documents found there, it is evident that place is in close connection with, and dependent on, Detroit. A large quantity of corn, a variety of household goods, peltry and other articles were burned with this village, which consisted of about seventy houses, many of them well finished."

Objection to this line of evidence, as incompetent, irrelevant and immaterial and unresponsive to the question.

3807 I now refer to paper number 11 in Volume 2, Indiana Historical Society Collections, title being, "Documents Relating to the French Settlements on the Wabash. By Jacob Piatt Dunn. Indianapolis: The Bowen-Merrill Company. 1894."

Have not looked up Dunn, but think he is the author of Dunn's Indiana in the American Commonwealth series, which is regarded as an excellent book. In Volume 2, Illinois Historical Society Collections, edited by Professor Alvord, Roman 16, footnote 2, there are references to Dunn.

3808 Carter's, the Illinois County, heretofore used in this case; in the critical bibilography, page 198, under the heading, "State and Local Histories," says: "Dunn, J. P., Jr., Indiana: A Redemption from Slavery. Boston and New York, 1888.—Fair. Has not used all the available material." Evidently, he is the man to whom I referred.

On page 191 of this Critical Bibliography under "Printed Sources,' is a reference as follows:

"Thwaites, Reuben Gold, ed., The Jesuit Relations and Allied Documents, vols. LXX and LXXI. Cleveland, 1900-1901.—Contain a few documents of importance for present study. Notes not all trustworthy."

3809 Also, I find:

"Thwaites, Reuben Gold, ed., Early Western Travels, 1748-1846, vols. I and XXVII. Cleveland, 1904 and 1906—Croghan's 'Journals' and Flagg's 'The Far West' are the most important documents. Notes to be used with care."

3810 Returning to Dunn's Indiana at page 435, occurs this document, which consists of a tabular view of the route

as indicated from Detroit to the Illinois by way of the forts named in the title (reading):

"The road from Detroit to the Illinois, by way of the forts Miamie, Ouiatanon and St. Vincent with some remarks."

Footnote 1 (reading):

"This itinerary is not dated, but is deposited with papers of the year 1774, and was probably prepared in that year."

(Reading page 436):

"To Ouiattanon Fort, 18, the figures being miles. This fort is on the right about 70 yards from the river, the Ouiattanon Nation of Indians is on the opposite side, and the Kiccaposses are round the fort, in both villages about 1000 men able to bear arms. * * * From Fort Ouiattanon down the Ouabache to the river Vermillion, 60 miles. N. B. This river is on the right & at some seasons is navigable for boats about 120 miles. A mile up it is a village at Piankshaws of upwards of 150 men. Three miles.

To the highlands or Old Boundary between Canada and Louisiana, 57 miles.

To Fort St. Vincent, 120 miles. To the Illinois by Land the road is chiefly through plains and Extensive Meadows, 240 miles."

And then the whole distance is totalled up from Detroit to Illinois, 879 miles (reading):

"N. B. The above distances are all computed.

The road from Detroit to Fort St. Josephs by land & from thence to the junction of the Illinois river with the Mississippi by water.

From Detroit to the river Huron or Haudewine Sippy, 40 miles.

N. B. There is a village of Puttawattamees of six large Cabans—the river at this place is about fifty feet wide & the water is generally from one and a half to two feet deep, when there are floods travelers are obliged to make rafts to cross it—The road to this place is bad.

To the Salt River or Wandayon Sippi, 12 miles.

N. B. There is another village of Pittawattamees of five Cabans—this river is never so high as to prevent people passing it.

To one of the Branches of Grand river or Washtanon, that falls into Lake Michigan, 60 miles.

There is another village of Pittawattamees of eight large Cabans. Total 112 miles."

And then I pass over a portion of this table, this simply continuing the details of the routes, the distances, etc., in the fashion of the portion I have just read, until I come to this point on page 438 of the document (reading):

"To the junction of this river with the Iroquois river, 150 miles. N. B: In this Fort is a village of 14 large Cabans of Mascoutains.

To the junction of this river with the Chicagou river which forms the Illinois river, 45 miles.

N. B. At the Fort there is a village of Puttawattamees of 12 large Cabans."

A footnote (No. 5) accompanies the word Chicagou, which reads: "the Des Plaines."

Coming to the conclusion of the document, occurs this:

"From Detroit to the Mississippi by way of the Illinois river, 833 miles."

3813 Objection, incompetent, irrelevant and immaterial.

The WITNESS (continuing): Going back and continuing reading from where I left off at the bottom of page 437: "There is another village of Pittawattamees of eight large Cabans," I continue from that point:

"To Reccanamaz river or Pussawpaw Sippy otherwise the Iron Mine river, 75 miles. N. B. There is another village of Pittawattamees of eight large Cabans, this river can not be passed in Freshes on Rafts, at other time 1 or 2 feet deep.

To the Prairie ronde, 30 miles.

N. B. There is a small lake of about 3/4 mile wide and 11 miles long, abounding with several sorts of Fish, such as Maskenongi, White Fish, &c.

To Fort Saint Josephs, 75 miles.

N. B. There is a few Pittawattamees near the Fort the road after you pass the river Huron is very good
3814 being mostly on a small height of land & little wood till you come to St. Joseph's where you pass thro' about a mile long and another about six miles long.

From Fort Saint Josephe's you ascend that river to a carrying place, 12 miles.

From carrying place to Recankeekee river, 4 miles.

At this point begins the citation to the junction of this river with the Iroquois river, 150 miles."

Connecting the notes with the context, note 1 on page to Iron Mine River reads (reading): "The Kalamazoo—near Battle Creek."

Note 2 on Prairie ronde reads: "Prairie ronde—in the southwest corner of Kalamazoo county, Michigan. The township still bears that name.'

Note 3, on Fort St. Josephs reads: "Near Niles, Michigan."

Note 4 occurring after "From Fort St. Josephs' you ascend that river to a carrying place," reads: "Site of South Bend, Indiana."

3815 Referring to Professor Alvords introduction to volume 2, Illinois Historical Collections, Volume 1 of the Virginia series, the statement on Roman 16, concluding, "for it was by the Wabash that the principal trade route between the western posts and Canada ran," I have examined the work and found no reference in that article, by Alvord, to a route by the Illinois and Lake Michigan or the Desplaines and Lake Michigan.

I next refer to the Basis of American History by L. Farrand, Vol. II of the American Nation Series, which has heretofore been identified by a witness for complainant, which refers to routes from the Great Lakes to the Mississippi basin (reading):

3816 "On account of the hostility of the Iroquois Indians, the portages from Lake Erie were not much used until the eighteenth century, but later became of great importance. On the west there was one well known and much frequented, the portage from the Maumee to the Wabash, which varied from eighty to twenty miles in length. Its eastern end is marked by the present town of Fort Wayne."

Motion to strike out; incompetent, irrelevant and immaterial.

The WITNESS (continuing): I now refer to Andreas' History of Chicago, Vol. I, 1812 to 1857. This has already been identified (reading page 67):

"Soon after the opening of the eighteenth century, this route to the Mississippi became so dangerous that it was gradually abandoned, and finally almost forgotten. The long war between Illinois and the Iroquois had made

the Kaskaskias fearful and timid. They were directly
3817 in the path of the enemy from the location of their village, which, lying far up the river, was first struck by their war parties on their raids into the country of the Illinois."

The WITNESS (continuing). This section deals with early explorations of the region about Chicago, including the explorations of La Salle, Tonty and others who were at Chicago in that period. Immediately before the section I have read, he refers to the letter of De La Source, who accompanied St. Cosme on his trip to the Mississippi, and speaks of the boy being lost and his fate. The passage I cited refers to the passage from Chicago or Lake Michigan to the Mississippi by way of the Illinois.

3818 Presumably, I would say, it was by way of the Desplaines and Illinois, for we know St. Cosme went that way, though I would make more careful examination to state that absolutely.

Referring to the boy who was lost, I read from Andreas, page 66 (reading):

> "He was insane and utterly exhausted. The party returned to Chicago from the lower Mississippi early in 1700 and remained there until Easter, the letter of De La Source being written at 'Chicagou.' From the allusions made by St. Cosme to 'our people' before whom he said Mass on All Saints' Day, and with whom he 'passed the night at Chicagou', and also from his direction to 'Brother Alexander', who remained behind in charge of the Cache on the shore of Lake Michigan, to 'take some of the French who were at Chicagou', to aid him in his search for the lost boy, it must be inferred that the place had become of considerable importance, at the point of disembarkation from the lake, on the route from Canada to Louisiana; that it had become the residence of several French traders, and, during a portion of the year of the Jesuit Fathers connected with the Miami Mission."

3819 I read this to identify the route concerning which I was questioned. He is still talking about the route from Chicagou to the Mississippi by way of the Illinois.

La Source was one of the group of Seminary Missionaries who made the trip from Canada to the lower Mississippi region by way of the Chicago and the Illinois about the close

of the seventeenth century. They came up the Missis-
3820 sippi river to Cahokia across to Chicago by the Illinois making the last stake of the journey thirty leagues by land. The party returned from the lower Mississippi and remained there until Easter, that is, the journey referred to.

Motion to strike out unless the source is specifically cited.

The WITNESS (continuing): I now read from Andreas, page 67 (reading):

"Two years later, in 1702, Fort St. Louis was abandoned as a military post. Then followed long and bloody wars between the French of Louisiana and their Illinois allies, with various tribes of the northwest, commencing with the Foxes of Wisconsin. Charlevoix says of the latter, during the early part of the eighteenth cen-
3821 tury, 'The Outagamies, (Foxes) infested with their robberies and murders, not only the neighborhood of the Bay (Green Bay) but almost all the routes communicating with the remote colonial posts, as well as those leading from Canada to Louisiana.' After the Foxes, came the Pottawatomies, who finally almost exterminated the old allies of the French, and the Chicagou route, formerly so often traversed by French Missionaries and traders on their way to the Illinois and Mississippi, was, as before stated, forsaken, if not forgotten.

Father Julien Bineteau, who preached to the Miamis at Chicagou, died not long after the visit of St. Cosme, from sickness contracted while following the Indians on their Summer hunts over the parched and burning prairies. Father Francis Pinet, his companion, went to the great village of the Peorias, after the removal of the Kaskaskias, and there founded the Cahokia mission,—where he died soon after. Father Gravier, according to his promise returned to the village of the Peorias, where he was dangerously wounded, and descending the Mississippi, in search of medical treatment, died on the voyage in 1706. The labors of the French missionaries, and the attempts at founding French colonies in Louisiana, were no longer extended to the region north of the Illinois, and with the exception of a struggling village at Starved Rock, even the once pow-
3822 erful Illinois had been driven by 1720, from all their villages above Peoria Lake. In that year Fort Chartres was built on the banks of the Mississippi, near the

two French settlements of Kaskaskia, and Cahokia,—a protection to both. About the year 1718, the Miamis were driven from the vicinity of Chicago, and in 1722, the Illinois villages at Starved Rock and at Peoria Lake, were besieged by the Foxes. Boisbriant, the commander at Fort Chartres, sent a force to their relief, which arrived after the contest had ended, leaving the Illinois victorious. So greatly had they suffered for years, however, from these constant attacks, that they returned with the French to the shelter of Fort Chartres, and with their abandonment of the river, the only protection to the route from Canada by way of Illinois to the French settlements was taken away. Charlevoix says of their victory and subsequent removal to southern Illinois:

'This success did not, however, prevent the Illinois, although they had only twenty men, with some children, from leaving the Rock and pimitory (Peoria Lake) where they were kept in constant alarm, and proceeding to unite with those of their brethren (The Kaskaskias) who had settled upon the Mississippi. This was a stroke of grace for most of them, the small number of missionaries preventing their supplying so many towns
3823 scattered so far apart; but, on the other side, as there was nothing to check the raids of the Foxes along the Illinois river, communication between Louisiana and New France became much less practicable.'

In 1725, Boisbriant, the commandant at Fort Chartres, was made acting governor of Louisiana, and M. De Siette, a captain in the Royal Army, took his place at the Fort. Difficulties with the Foxes and their allies had been continually growing worse since the removal of the Illinois—the French being now more exposed to their attacks. The Colonists were murdered almost under the guns of the Fort, and the whole country of the Upper Illinois was a battle ground. De Lignerie was the French commandant at Green Bay, and labored assiduously to bring about a peace between the northern tribes and the Illinois. On the seventh of June, 1726, he assembled the Sauks, Winnebagoes, and Foxes at his post, and 'told them from the King, that they must not raise the war club against the Illinois, or they would have reason to repent it.' He was fairly well satisfied with the answer of the chiefs, and hoped the peace would

be stable; but De Siette, at Fort Chartres, had less confidence in the Foxes, for their word, and suggested to De Lignerie, that the best method would be to exterminate them, at once. De Lignerie while believing with
3824 De Siette that this would be the very possible method, if it could be carried out, feared the plan would not be a success, and that the Foxes, would 'array all the upper nations against us,' and 'the French of either colony be unable to pass from post to post, but at the risk of robbery and murder.' This had been the case too long, and the commandant at Green Bay advised the impatient De Siette to cause his people (The Illinois) if they have made any prisoners to send them back to the Foxes, 'as he has told the latter to do with their,' if their young men bring in any from the country."

On page 69 is an account of an interview at Chikagou which was destined not to happen, as things did not go well between the French and Foxes during the coming year. In August, 1727, M. De Beauharnais, then commanding in Canada, informed M. De Siette by letter at Fort Chartres, that he had determined to make war on the Foxes the coming Spring, and he gave the information that De Siette might make preparations and give assistance by disposing of the Illinois and French of the Mississippi to join the Canadians, finishing his letter by saying:

"It is reasonable to suppose that the people of Louisiana will come to this war with more ardor than the
3825 Canadians, as they are much more exposed to the incursions of the Foxes, who alarm and even kill them continually."

3826 (Reading):

"De Siette joined the Canadian forces at Green Bay the following Spring, and a battle ensued at Butte Des Morts, Wis., in which the French and their allies, the Illinois, were successful; but hostilities did not cease, and communication between Canada and the Mississippi by way of the Illinois river was as dangerous as before. For nearly half a century the name of Chicagou is not mentioned, and there is no record of any visit of a white man to the locality. DuPratz, an old French writer, and a resident of Louisiana, from 1718 until 1734, says of the 'Chicagou' and Illinois route in 1757: 'Such as came from Canada' "—

Here follows the citation from DuPratz already in the

record, at Transcript 3768 (Abst., 1429). On pages 180 and 181 is another passage from DuPratz (reading):

"Let us therefore now repass the Mississippi, in order to resume the description of the lands to the east, and which we quitted at the River Wabache. This river is distant from the sea four hundred and sixty (300) leagues. It is reckoned to have four hundred leagues. in length, from its source to its confluence into the
3827 Mississippi. It is called Wabache, though according to the usual method, it ought to be called the Ohio or Beautiful River, seeing the Ohio is known under that name in Canada, before its confluence was known; and as the Ohio takes its rise at a greater distance off than the three others, which mix together, before they empty themselves into the Mississippi, this should make the others lose their names; but custom has prevailed on this occasion."

I have heretofore testified about DuPratz referring to his account of the Orignaux in the country lying north of the Wabash. I assumed that that referred to the country north of the Ohio. I had in mind this explanation which I have now read, that DuPratz as he said, the French at this time used the name Wabash, referring to the river which we call the Ohio. Returning to this citation (reading):

"The first river known to us, which falls into the Ohio, is that of the Miamis, which takes its rise towards Lake Erie.

It is by this river of the Miamis that the Canadians come to Louisiana. For this purpose they embarked on the river St. Lawrence, go up this river, past the
3828 cataracts quite to the bottom of Lake Erie, where they find a small river, on which they also go up to a place called the Carriage of the Miamis; because that people come and take their effects, and carry them on their backs for two leagues from thence to the banks of the river of their name, which I just said empties itself into the Ohio. From thence the Canadians go down that river, enter the Wabache, and at last the Mississippi, which brings them to New Orleans, the capital of Louisiana. They reckon 1800 leagues from the capital of Canada to that of Louisiana, on account of the great turns and windings they are obliged to take."

Q. If you can summarize this subject possibly it would be well to do that now.

Objection; incompetent, irrelevant and immaterial; witness not qualified to draw a conclusion.

3829 A. Pointing out briefly the bearing of the citations upon this question of trade between Lake Michigan and the Mississippi by way of the Illinois route, in the period from 1764 down to the publication of the St. Louis Enquirer editorial which has been under discussion:

I call attention to the citations from Andreas showing that beginning about 1700, the use of the Desplaines route by the French, which had been comparatively frequent prior to that date, was abandoned, owing to the wars which have been referred to in that connection.

That DuPratz in his work published in 1757 or 1758 confirms in a way this account from Andreas, when he says that the Canadians who come from Canada to the lower Mississippi now come by way of the Wabash, having given up the Illinois route.

That Professor Carter in his account of the Illinois country from 1763 to 1774 in chapter 5, which deals with trade conditions between 1765 and 1775, shows that the bulk of the trade of the Illinois country in that period went down the Mississippi to New Orleans, as its outlet.

3830 Professor Alvord's introduction to the Cahokia records points out that there was some connection with Canada in the period especially from 1778 to 1790; but as I infer to some extent also prior to the first date there was some connection. But the principal route was by way of the Wabash, and he makes no mention, whatever of travel by way of the Illinois-Chicago or Desplaines route.

I have nothing to say about the period from 1790 to 1804, except that in a general way all trade was under the control of the British who had supplanted the French in carrying on the fur trade of the northwest.

From 1804 to 1812 John Kinzie was at Chicago and came to control a large part of the trade of the surrounding region. He relied mainly on horses in the conduct of his business. Forsyth, Kinzie's partner, was stationed at Peoria, hence the control of the firm of fur trade between Peoria and Chicago was doubtless considerable. From 1812 to 1815, the war between the United States and Great Britain was

3831 going on, and Kinzie's establishment at Chicago was abandoned, as was Forsyth's at Peoria, and it is a fair

inference that there was very little fur trade carried in this period.

This brings us to the approximate date of the editorial, and it is on the foregoing line of reasoning that I base my conclusion that the interpretation that thousands of boats such as were described in the editorial passed over from Lake Michigan to the Illinois in that period, is strained and exaggerated.

3832 I brought in the article on Ouiatanon by Craig, and this document which is given us by Dunn, including the reference in Hutchins Topographical Description, as to the trade by way of Ouiatonon and the Wabash route, as throwing further light upon the existence of that trade route and the use that was made of it in that period; and especially that the title of the document, "The road from Detroit to the Illinois," and its contents show that was a well known route during that period, the probable date of the document being 1774 as given by the editor. It is other and additional lines of evidence to show what Alvord stated in his introduction to the Cahokia records, that the principal trade relations between the Illinois country and Canada in

3833 this period was by way of the Wabash.

Q. There have been numerous references to the Illinois route or by way of the Illinois. In view of this route as laid down from Detroit by way of the St. Joseph and the Kankakee, when we merely find a reference to a route by the Illinois for a journey by the Illinois, can it be fairly inferred that that journey was made by the Desplaines and the Chicago?

Objection; each reference to the Illinois to be judged by context and no general statement concerning inferences is proper.

COUNSEL FOR DEFENDANT. There are statements in which the context shows nothing as to the route, wherein the mere statement is in substance that the trip was by the Illinois.

A. One must know the detailed circumstances. When Forsyth refers to the Ottawa Indians, who can easily come with their birch bark canoes to the defense of the Illinois, it would seem probable that he may have had this route in mind. Generally, it seems to me no such inference can be drawn, but one must take into account the circumstances surrounding each reference.

3834 Assuming that a man at Cahokia intended to send goods east "by way of the Illinois" I would be inclined

to say that no inference could be drawn from that fact alone, that the intention was to send it by the Desplaines and Chicago, in view of the fact that this document shows that the route by way of the Kankakee and further, as indicated in the document itself, is specifically detailed and therefore a well known route.

3835 I have been asked to check up a reference which I made to Darby's Louisiana. I read from the title page (reading):

"A Geographical Description of the State of Louisiana presenting a View of the Soil, Climate, Animals, Vegetable and Mineral Productions; Illustrative of its Natural Physiognomy, its Geographical Configuration, and Relative Situation; with an account of Character and Manners of the Inhabitants. Being an Accompaniment to the Map of Louisiana by William Barby. Printed for the author and published by John Melish, Philadelphia. J. Bioren, Printer. 1816."

I read from the preface, pages four and five, Roman notations (reading):

"But little knowledge of Louisiana can be gained from the perusal of works published in Europe. From national prejudice and want of accurate material, Trans-Atlantic writers, when treating on any part of America, almost uniformly mislead rather than instruct. From the former censure Count Vergennes must be excepted; this enlightened and liberal statement in his memorial presented to the French Government, in the early part of the American Revolution, does ample justice to
3836 the American character; but in local knowledge, no more correct than most European authors on that subject, yet evinces a very limited knowledge of the position, and relative importance of places."

This volume was written to accompany the map of Louisiana by the author and there is a further account of this map in the form of attestation printed in the book, which I have heretofore referred to (Abst., 1410) two, by Thomas Jefferson and James Wilkinson. I have previously used the Public Library copy; I now have the Chicago Historical Society copy. The attestation of Thomas Jefferson does not appear here. There are others.

3837 First, William C. Claiborne, who was a lawyer; settled in Tennessee; in 1796 helped to frame Tennessee constitution; member of Congress 1797 to 1801; appointed Gov-

ernor of Mississippi Territory in 1802; Commissioner with Wilkinson to take possession of Louisiana when purchased by United States. First Governor of Louisiana under United States 1804, and when state was organized was Governor from 1812 to 1816. Later, he went to the United States Senate. He had abundant opportunity to familiarize himself with the geographical conditions of Louisiana. I read his testimonial to Darby's map (reading):

"The undersigned has examined a map of the State of Louisiana by William Darby, of the County of Opelousas, which has long engaged the attention of that gentleman, and is believed for the most part, to be the result of his personal observation.

The undersigned cannot vouch for the entire accuracy of this map, but as far as his local knowledge enables him to judge, the work appears to be faithfully ex-
3838 ecuted, and to present an accurate view of Louisiana. Given at New Orleans, on the 29th of June, 1816.

(Signed) William C. C. Claiborne."

Further, from General Andrew Jackson, afterwards President Jackson, who fought the British at New Orleans, and in general was qualified to speak of the geography of this region (reading):

"I have no doubt, whatever that Mr. Darby's map of Louisiana is more correct than any which has been published of that country.

He has certainly taken extraordinary pains to acquire correct information; and so far as my opportunities have enabled me to judge, I am induced to think his delineations very exact.

(Signed) Andrew Jackson, Maj. Gen. Com'g 7th Mil. Dis."

Further, from Edmund P. Gaines, who was a general in the United States Army (reading):

"I have examined Mr. Darby's map of Louisiana, and am of opinion that the delineations are faithfully drawn, and that it exhibits much more correct information of the topography of this country, than any map heretofore published, and I heartily concur in the opinions expressed by Maj. W. O. Winston, as above."

3839 Further, from James Wilkinson (reading):

"I have no hesitation to say, that from my knowledge of the country, and by the comparison with our original surveys made at great expense, and now in my pos-

session, that the map of Louisiana published by Mr. William Darby, is by far the most correct which is extant—particularly, in the important communications of the Iberville on the east, and the Fourche and Atchafalaya outlets on the west, with the Mississippi; and also the mouth of that river, and its general course and various inflexions."

I would like to make a correction here; I overlooked the fact that Gaines' attestation ceased and General Wilkinson's began, so that I have been reading further from James Wilkinson's attestation. His attestation begins with the words, "I have no hesitation to say," and so forth. From there on what I have read is by James Wilkinson, signed "Philadelphia, April 19, 1816."

3840 I have previously spoken from memory as to the granting of prizes by the American Historical Association and their not awarding the prize unless the essay submitted was of sufficient merit. I read from a brochure of the American Historical Association dealing with the Justin Winsor prize and the Herbert Baxter Adams prize (reading):

"III. The monograph must present subject matter of more than personal or local interest, and must, as regards its conclusions, be a distinct contribution to knowledge. Its statements must be accurate and the author in his treatment of the facts collected must show originality and power of interpretation.

IV. The monograph must conform to the accepted canons of historical research and criticism.

It must be presented in scientific form.

It must contain references to all authorities.

It must be accompanied by a critical bibliography. Should the bibliography be omitted or should it consist only of a list of titles without critical comments and valuations, the monograph will not be admitted to the competition.

VII. In making the award the committee will consider
3841 not only research, accuracy and originality, but also clearness of expression, logical arrangement, and especially literary form. The successful monograph must be written in good English. The prize will not be awarded unless the work submitted shall be of a high degree of excellence."

Under Heading IX it appears that the Justin Winsor prize was offered annually until 1906, but form 1897 to 1899 and

in 1905 it was not awarded. I read further from the document (reading):

"For the encouragement of historical research the American Historical Association offers two prizes each for $200.00: The Justin Winsor prize in American History and the Herbert Baxter Adams prize in European history. Each is awarded biennially (the Winsor prize in the even years and the Adams prize in the odd years) for the best unpublished monograph submitted
3842 to the Committee of Awards on or before October 1, of the given year,—e. g. by October 1, 1909, for the Adams prize in European history, and by October 1, 1910, for the Winsor prize in American history. The conditions of award are as follows:

"I. The prize is intended for writers who have not yet published any considerable work or obtained an established reputation.

II. A. For the Justin Winsor prize.—The monograph must be based upon independent and original investigation in American history, by which is meant the history of any of the British colonies in America to 1783, of other territories, Continental or Insural, which have since been acquired by the United States, of the United States, and of independent Latin America. It may deal with any aspect of that history." * * *

3843 The composition of the Committee which passed upon Carter's Illinois country is as follows (reading):

"Charles H. Hull, (Chairman) Cornell University.
Williston Walker, Yale University.
John H. Latane, Washington and Lee University.
Claude H. Van Tyne, University of Michigan.
Theodore C. Smith, Williams College."

I now read from Carter's Illinois History, page 95 (reading):

3844 "Hutchins, 'remarks upon the country of the Illinois, 1771.' From New Orleans, where all the western trade finally centered, it was estimated that peltries worth between 75,000 and 100,000 pounds sterling were sent annually to foreign ports. Gage estimated it at 80,000 pounds sterling, Gage to Shelburne, January 17, 1767, B. T. Papers (Hist. Soc. Pa.), vol. XXVI. 'New Orleans remits one hundred thousand pounds sterling worth of peltry annually to France,' Baynton, Wharton and Morgan to McLeane, October 9, 1767, ibid. vol. XXVI."

Also on page 96 of Carter, footnote, 64:

"Gage to Johnson, January 19, 1767, Johnson Mss. vol. XIV, No. 23. Captain Forbes, commandant at Fort Chartres during part of 1768, wrote to Gage: 'As I am very sensible of the immense expense this Country is to the Crown and the little advantage the public has hitherto reaped by the trade with savages, and the reason is that the Inhabitants have continued to send their Peltry to New Orleans which is shipped from thence for Old France and all the money that is laid out for the Troops and Savages is immediately sent to New Orleans, for which our Subjects get French Manufactures. I hope, Sir, you will excuse me when I observe to Your Excellency, that the Crown of Great Britain is at all the expense and that France reaps the advantages." Forbes to Gage, April 15, 1768, P. R. O. Am. and W. I., vol. 124. Commandmant Wilkins wrote the same year that 'the French of New Orleans are the sole gainers in this Trade and the public suffer greatly thereby," Wil-
3845 kins to Gage, September 13, 1768, ibid."

Further I read from page 98, footnote 72, beginning near the bottom of the page (reading):

"The merchant Morgan wrote from Fort De Chartres in 1768 that 'nothing is wanting but proper Posts at the Illinois River, St. Vincents and Manchac, a Civil Government and encouragement to Settlers from the Frontiers of Pennsylvania, Maryland and Virginia to make this a most flourishing Colony. Without these means taken 'tis not worth keeping possession of as to any immediate Advantage resulting therefrom, As the English Nation is now at the whole expence of maintaining the Country and France reaps all the benefits from the Trade. * * * Morgan's MS. letter book."

I now read from Vol. X, Michigan Pioneer and Historical Collection, pages 222 to 224, a letter from Governor Charleton to Sir William Johnson, dated Quebec, March 27th, 1767 (reading):

"Ever since my arrival, I have observed the Canadians with an attention bordering upon suspicion, but hitherto have not discovered in them either actions or sentiments, which do not belong to good subjects. Whether they are right or wrong in their opinion of the
3846 Indian Trade, I submit to those whom the King has appointed to direct and superintend the same, but the

unanimous opinion of all here, Canadians and British, is, that unless the present Restraints are taken off, that Trade must greatly suffer, this Province, be nearly ruined, Great Britain be a considerable Loser, and France the sole Gainer, as they must turn the greatest Part of the Furrs down the Mississippi, instead of the St. Lawrence. They compute that or very large Quantity of Merchandise, formerly passed thro' this Province to Nations unknown to Pondiach, and too distant to come to any of our Posts, and that so much is lost of the consumption of British manufacturers. They say that their own Interests will allways be a sufficient Reason and Motive to treat these people well, and to use their utmost Endeavors to keep them in Peace, and the Canadians will engage to take some English in every Canoe, to acquire a knowledge of these Countries, and the Language, to shew they have no Jealousy at their becoming acquainted with this Trade. 'Tis imagined here, that the other Provinces, who are neither acquainted with these Countries, nor so advantageously situated for this Trade, are the secret causes of their being so severely fettered; they presume to think each Province should be permitted to avail itself of its natural Situation; and acquired advantages, and that it would be as unreason-
3847 able in us to expect the Posts to the Southward be shut up by Regulations, as long as ours are by a severe climate; that in this Respect all the King's Subjects should be considered as Brothers, or one Family, and that the Rivalship ought not to be between Province and Province, but between the King's Subjects and those of France and Spain; some have offered to prove, that two years ago, while they were confined to the Forts, the French or Spaniards from the Mississippi came within twenty Leagues of the Detroit, and carried off the very Furs, that were intended to clear off the Credit given the Indians the year before. They even assert 'tis impossible to prevent them from carrying off by far the greatest Part of that Trade unless those Restraints are taken off, they maintain that the only possible Means of preventing those Evils for the future, and of removing the Discontents of the Indians, for not being supplied with the necessaries of life as formerly, is to permit them to go among them as was the Practice of this colony, that thereby they will be enabled to under-

sell the Mississippi Traders, detect their Artifices, and be the means of bringing them to Punishment, as it is their Interest and duty so to do; but supposing the worst of them, they hope the King's Subjects of Canada are as much to be trusted, as the French from New Orleans, and ought to have the Preference, considering they carry up the British Manufacturers only."

3848 Carter's Illinois History, page 92, footnote 47, refers to Carleton's letter as follows (reading):

"Lieutenant Governor Carleton of Canada, complained that owing to the restraints on the fur trade in that colony, all the trade was going down the Mississippi, Carleton to Johnston, March 27, 1767."

3849 My attention is directed to Flint's History and Geography of the Mississippi Valley, referred to in Alvord's direct, Transcript 323 (Abst., 152). The particular statement being, "We have already remarked that at certain seasons of the year boats of five tons burden already passed through the morass," and so forth, from the Desplaines to the Chicago; and Mr. McLaughlin's interpretation, Transcript 784 (Abst., 327), "Taken in connection with the whole passage, this indicates to me the use of the Chicago-Desplaines route as an avenue of commerce."

Flint's work is general history and geography of the
3850 Mississippi Valley region. Flint lived in the west from 1816 to 1826, six years of this time at St. Charles, Missouri. He travelled widely and had been on the lower Illinois. His work shows evidence in some respects of careful and scholarly methods. His sources of information show personal observation and that information gained from contemporaries. Upwards of half the work is compiled from other standard books. "He claims no other merit than that of being a laborious and faithful compiler."

I quote from the preface Roman numerals, eleven (reading):

"Something more than half the compass of this work is original, in the strictest sense of the word, the remarks and details being the fruit of his own observation
3851 or reflection. What has been suggested by the reading and observation of those, who have preceded him in labors of this kind, will be generally found, he thinks, to have been assimilated, to use a medical term, and to have received in his mind the moulding of his own manner. But touching the matter obtained from other

books, he claims no other merit than that of being a laborious and faithful compiler."

(Reading):

"He has referred to at least thirty volumes, and to those, who might feel disposed to suggest, that he has made a book from the labors of others, he would beg leave to remark, that, if they shall be pleased to think, that they have found the substance of all these volumes in his work, he shall consider it the highest encomium they can pass upon it."

For geographical and topographical matter, he consults Charlevoix, Volney, Darby, Long, Schoolcraft, Beck, Cincinnati directories, Woodruff's Engraving of the city and so forth.

3852 Whatever Flint's care or industry, he was subject to liability to error so far as he relied on these various sources that any other compiler would be. That is, to the extent indicated, that is secondary account. Whether he had ever been at Chicago, does not certainly app From his description of his journey up the lower portion of the Illinois, from the infrequency of visits to Chicago prior to 1826 and from the fact that there is no where any direct statement to the effect that Flint had been at Chicago, I think it may be fairly inferred that he had not. I am unable to find any prior remarks like the words with which he begins the statement as quoted, "as we have already remarked at certain seasons of the year boats of five tons burden already passed through the morass." There are none in his recollections published in 1826.

3853 As to his statement as to boats having passed and so forth, will say Flint nowhere gives references or authorities. The reader must accept his statement as having been weighed in his mind and amitted there as a matter of his own observation, or "on what he conceived to be competent and credible testimony of others." In support of which, I read, Roman numerals XII, Flint's Geography (reading):

"In reference to the second part of this work, it is from the obvious necessity of the case more simply a
3854 work of compilation, than the former. He has indeed brought every item of his own personal observation to bear upon it. But that observation in any individual case must be limited. He could not name if disposed, all the sources from which he has sought and obtained information."

And further from another portion of the same page (reading):

> "He has not considered it necessary to give individual quotations, or to disfigure the margin with references and authorities. The reader ought to rely upon the fact, that nothing is here put down which has not been previously weighed in the author's mind, and admitted, either as a matter of his own observation, or on what he conceived to be the competent and credible testimony of others. Sometimes upon a particular point, he has adopted the phraseology of the author entire. At other times, he has adjusted the views of one author by another, endeavoring to settle a just medium from the result of his own observation."

There was a common impression at and prior to the time reflected in Flint that the Illinois river was navigable almost to the Chicago portage, which impression was retailed all too loosely on anonymous authority. It grew in positiveness tahrough dint of repetition.

3855 Finally, actual examination and experience proved this impression to be baseless. For example, the statement in Schoolcraft, 1821; of Tousey, in 1822; Kennedy in 1773, and the experience of the men who constructed the Illinois-Michigan canal. I conclude therefore, that Flint was probably mislead by the prevalent and erroneous impression.

Motion to strike out as to too loosely retailed impressions; not responsible, stated without authority for the adjectives used by witness; is incompetent to give conclusion on the point.

3856 My attention is called to the reference to Gravier in the Jesuit Relations, Vol. 65, pages 101 to 103, and the statement by Alvord, transcript 118 (Abst., 51), referring to the passage from Gravier at page 117, which reads (reading):

> "I received on my return from Michilimachinack, the letter that you did me the honor of writing to me, by way of the Mississippy, addressed to Father Aveneau, who sent it to me at Chikagoua,—whence I started in 1700, on the 8th of September, to come here,"

and Alvord's conclusion that this indicates that Gravier used the Chicago-Desplaines route in going to the Illinois country, as the Jesuits were accustomed to do. In my judgment, as a historian, I do not think that any such inference can be prop-

erly drawn from that passage. The letter reads, page 101 (reading): "Who sent it to me at Chikagoua, whence I started in 1700, on the 8th of September, to come here." The "here" evidently meaning a point lower down on the Illinois. There is nothing to indicate that they went down the Desplaines; it rests upon inference alone.

3857 Alvord says he (Gravier) used the Chicago-Desplaines route as the Jesuits were accustomed to do, but the date of the letter is 1700 and it was the preceding year St. Cosme came down from Chicago to the Mississippi, and the record he left does not shown that they navigated the Desplaines to any considerable extent.

Marquette's account of his expedition of 1673, seems to make light of a portage of twenty to thirty leagues in the region of the upper Missouri. Such a statement must be taken into account in drawing an inference here as to the use of the Desplaines by Gravier.

59 Jesuit Relations. The Account of Marquette's First Voyage, 1673, translated by Thwaites, from the original French, page 141 (reading):

"Judging from the direction of the course of the Mississippi, if it continue the same way, we think that
3858 it will discharge into the Mexico Gulf. It would be a great advantage to find the river leading to the southern sea; towards California; and, as I have said, this is what I hope to do by means of the Pekitanoui, according to the reports made to me by the savages. From them, I have learned that, by ascending this river for five or six days, one reaches a fine prairie, twenty or thirty leagues long. This must be crossed in a northwesterly direction, and it terminates at another small river,—on which one may embark, for it is not very difficult to transport canoes, through so fine a country as that prairie."

Motion to strike out on ground that Alvord spoke with reference to use of Chicago-Desplaines-Illinois route.

Witness bases his answer on alleged failure to navigate.

3859 The WITNESS (continuing): St. Cosme did not return to Chicago. His associates in the party returned to Chicago in the spring of 1700, coming up the Mississippi to Cahokia and then by way of the Illinois, making the last thirty leagues of the journey by land to Chicago where they arrived much fatigued.

Objection to the testimony of witness in every instance where he undertakes to testify what a certain author said on a particular subject.

Motion to strike out on the same ground.

3862 The WITNESS (continuing): Thirty leagues down the Illinois from Chicago would be something less than ninety miles, approximately in the region of La Salle or Starved Rock.

In view of the objection by counsel for complainant to my statement in substance that actual examination proved that the impression as to the use of the Chicago-Desplaines route was baseless, I can particularize what books of Schoolcraft, and those others I referred to.

3864 In that connection I had in mind Schoolcraft's Travels in the year 1821. Collins & Hanney Edition, 1825, An Account of the Journey from Peoria to Chicago, page 318, beginning, "From this place, we went on about six miles, and encamped on a high prairie bank, where we spread our
3865 beds upon the right grass," and continuing to the break headed, "Rock Fort," on page 319, and beginning on page 321, with the words, "Finding the navigation so difficult, we determined to relinquish the design of proceeding any farther by water," and continuing to the end of the account of the journey, "on to Chicago by horses."

A reference to Tousey appearing in the volume of Personal Memoirs and so forth, Schoolcraft, 1851, pages 179 and 180, and a reference to Kennedy in Hutchins' Topographical Description, 1778, page 51, through the whole of Kennedy's Journal, to page 64.

My attention is directed to Hoffman's Winter in the
3866 west, referred to in complainant's testimony, transcript 332 to 335 (Abst., 155-157), particularly the portion beginning:

"There is one improvement to be made" and ending "Over the intervening prairie at high water."

Hoffman being an intelligent traveler, what he says merits consideration. He was at Chicago in January, 1833, or 1834, the weather being extremely cold.

Hoffman, page 242, letter 18, dated Chicago, January
3867 10, 1834 (reading):

"I have been here more than ten days, without fulfilling the promise given in my last. It has been so cold, indeed, as to almost render writing impracticable in a place so comfortless. The houses were built with

such rapidity, during the summer, as to be mere shells; and the thermometer having ranged as low as 28 below zero, during several days, it has been almost impossible, notwithstanding the large fires kept up by an attentive landlord, to prevent the ink from freezing while using it, and ones fingers become so numb in a very few moments when thus exercised, that after vainly trying to write in gloves, I have thrown by my pen, and joined the group, composed of all the household, around the barroom fire. * * * Several persons hacve been severely frostbitten in passing from door to door; and not to mention the quantity of poultry and pigs that have been frozen, an ox, I am told, has perished from cold in the streets at noonday."

3868 There is no evidence in this narrative to show that he did see the Desplaines route, at any rate, since the weather was so cold, the passage could have no bearing upon the question upon the navigability of the Desplaines.

Motion to strike out.

The WITNESS (continuing): Note M, in the appendix, deals with the Chicago river and the question that the canal could connect the Chicago with the Desplaines, and from the nature of this note it is clear that he has drawn it from Keating's account of Long's expedition of 1823.

I say it is clear because the narrative of the expedition of Major Long by Keating, Vol. I of 1824 edition, pages 165 to 167, contain the substance of note M of Hoffman. Part of said note is direct quotation from these pages of Keating; the remainder, it seems evident, a condensation of the other portions. To make this plain the passages may be put in parallel columns:

The foregoing passages are as follows:

(Hoffman)	(Keating)
"The Chicago river, which is about two hundred and fifty feet wide, has sufficient depth of water for lake	"The south fork of the Chicago river takes its rise, about six miles from the forks, in a swamp which communicates
3873 vessels to where it forks in the center of the town. The southern and principal branch takes a rise about six miles from the swamp, which communicates also with the	also with the Desplaines one of the head branches of the Illinois. Having been informed that this route was frequently travelled by traders and that it had been used by one of the

Desplaines, one of the head branches of the Illinois. This swamp, which is designated by the Canadian voyageurs as Le Petit Lak is navigable at certain seasons of the year; it has been frequently traveled by traders in their pirougues; and a batteau from St. Louis, loaded with provisions, for the garrison at Chicago, has through this medium passed from the Mississippi into Lake Michigan.

Major Long observes, upon passing through this marsh in a canoe, 'we were delighted at beholding for the first time a feature so interesting in itself, but which we had afterward an opportunity of observing frequently on the route; viz: the division of waters starting from the same source and running in two different directions, so as to become the feeders of streams that discharged themselves into the ocean at immense distances apart. * * * When we consider the facts above stated, we are irresistably lead to the conclusion, that an elevation of the lakes a few feet (not exceeding ten or twelve) above their
3874 present level would cause them to discharge their waters, partly, at least, into the Gulf of Mexico. That such a discharge has at one time existed, every one conversant with the nature of the country must admit; and it is equally apparent that an officers of the garrison, who returned with provisions from St. Louis, a few days before our arrival at the fort, we determined to ascend the Chicago river in order to observe this interesting division of waters. We accordingly left the fort on the 7th of June, in a boat, which, after having ascended the river, about four miles, we exchanged for a narrow pirogue that drew less water; the stream we were ascending was very narrow and crooked, presenting a great fall; it continued so for about three miles, when we reached a sort of swamp designated by the Canadian voyagers under the name of Le Petit Lac. Our course through this swamp, which extended for three miles, was very much impeded by the high grass, weeds and so forth, through which our pirogue passed with difficulty. Observing that our progress through the fen was very slow, and the day being considerably advanced, we landed on the north bank, and continued our course along the edge of the swamp for about three miles, until we reached the place where the old portage road meets the current, which was here very distinct towards the south.

When we consider the facts above stated, we are irresistibly led to the conclusion, that an elevation of the lakes of a few feet (not exceeding ten or

expenditure trifling in comparison to the importance of the object would again render Lake Michigan a tributary of the Mexican Gulf."

twelve), above their present level, would cause them to discharge their waters, partly at least, into the Gulf of Mexico; that such a discharge has at one time existed, every one conversant with the nature of the country must admit; and it is equally apparent that an expenditure, trifling in comparison to the importance of the object, would again render Lake Michigan a tributary of the Mexican Gulf."

3875 I would say that Hoffman's statement would have the same force as in the original volume of Keating and no more. Hoffman's statement, page 224, where he says that the headwaters of the Illinois rise within eleven miles of the Chicago river, is not accurate, assuming that he meant the Desplaines. Speaking from my general knowledge, the Desplaines rises in Southern Wisconsin and the north branch of the Chicago river rises 25 or 30 miles from its mouth. I believe the statement would be inaccurate on that account.

3876 Hoffman's statement "the distance to be overcome is something like ninety miles; and when you remember that the headwaters of the Illinois rise within eleven miles of the Chicago river," with a footnote reference to note M which has been read into the record is based on Keating's account of Long's expedition.

My attention is called to Keating's expedition to the source at the St. Peter's (transcript, pages 295-297; Abst., 135-136), which ends with the words: "As the portage then extends to Mount Joliet near the confluence of the Kankakee."

3877 The excerpt read by Alvord ends on page 168 of the 1825 edition. I read the last of the paragraph, page 168 (reading):

"When we consider the facts above stated, we are

3878 irresistibly led to the conclusion, that an elevation of the lakes of a few feet (not exceeding ten or twelve) above their present level, would cause them to discharge their waters, partly at least, into the Gulf of Mexico; that such a discharge has at one time existed, every one conversant with the nature of the country must admit; and it is equally apparent that an expenditure, trifling

in comparison to the importance of the object, would again render Lake Michigan a tributary of the Mexican Gulf. Impressed with the importance of this object, the Legislature of Illinois has already caused some observations to be made upon the possibility of establishing this communication; the Commissioners appointed to that effect, visited Chicago after we left it, and we know not what results they obtained, as their report has not reached us; but we have been informed that they had considered the elevation of the petit lac above Chicago to be somewhat greater than we had estimated it. It is the opinion of those best acquainted with the nature of the country, that the easiest communication would be between the Little Calamick and some point of the Desplaines, probably below the portage road; between these two points there is, in wet season, we understand, a water communication of ten or twelve miles. Of the practicability of the work, and of the sufficiency of a supply of water, no doubt can exist. The
3879 only difficulty will, we apprehend, be in keeping the communication open after it is once made, as the soil is swampy, and probably will require particular care to oppose the return of the soft mud into the excavation."

Q. With the excerpt in mind which was read by Professor Alvord, and this additional portion of it, will you give your conclusions as a historian as to the weight to be attached to these statements of Keating?

Objection; no proper foundation laid for such question.

A. The character of this book and auspices under which it appeared gave rise to a presumption in favor of its general reliability, which may be overthrown if facts are cited which tend to overthrow it. He states that they passed, though with difficulty,—I do not quote literally,—into Mud Lake, through which their progress was so slow that they abandoned the boat, a light pirogue, and walked three miles to the point where the portage road met the current flowing toward the Desplaines.

3880 They did not doubt the route across from Chicago to the Desplaines was very eligible in the spring. Hopson told them he had traveled it with ease with a boat loaded with flour and lead. The portage road is eleven miles long. The usual portage is four to nine miles. That in dry seasons it has been said to amount to thirty.

Keating concludes that an expenditure, "trifling in comparison with the importance of its object," would cause the lakes to empty into the Gulf. Those most familiar with the nature of the country think the easiest communication would be between the Little Calimick, and some point on the Desplaines.

Keating did not go further than to the Desplaines, and so far as the book shows, had no direct knowledge of that stream. As to the feasibility of the canal communication with the Mississippi, he accepts the reports of others.

Hopson's statement applies to the route from the Desplaines to the Chicago. Obviously, it could be traveled with ease in a loaded boat in time of high flood.

3881 The basis of my last observation being that Hubbard states in the Hamilton Hubbard, that Mud Lake will not float a boat except in times of very high water, and Keating says in another part of this narrative that although they were here in early June, Keating says the Desplaines is so deep that they had difficulty in fording it at a point higher up.

Objection; to the witness telling what people say in these passages.

The WITNESS (continuing): I read from chapter 5, Keating 1825 Edition, page 175 (reading):

"Having spent a few days in Chicago, the party left that post on Wednesday, June 11th." * * *

Page 176 (reading):

3882 "The first stream passed, on that day, was the Chicago river, which we crossed about half a mile above the fort, and immediately above the first fork (or Gary river); the party next came to the River Desplaines, which is one of the head branches of the Illinois; it receives its name from a variety of maple, which by the Canadians is named Plaine. In Potawatomi the river is termed Sheshikmaoshike Sepe (Which signifies flumen arboris quae mingit). This appelation is derived from the great quantity of sap which flows from this tree in the spring. We crossed the Desplaines about four miles above the Portage road; it was forty yards wide, and so deep that part of our baggage was wet while fording it, but fortunately none materially injured. The length of the Desplaines from this ford to its source is about fifteen miles, that to its confluence with the Kankakee about forty miles."

3883 When I cited Hubbard, as authority for the statement that Mud Lake will not float a boat except in times of very

high water. I had in mind the passage in Hamilton's Hubbard, page 39, which says:

"Mud Lake drained partly into the Aux Plaines and partly through a narrow, crooked channel into the south branch, and only in very wet seasons was there sufficient water to float an empty boat."

3884 Proceeding with my general analysis of Keating and the weight to be given to it, Keating apparently accepted, without question, the general but ignorant supposition that only a small sum would be wanting to open communication between the lakes and the Mississippi.

I fix the word "ignorant" on Thomas Tousey's letter to Schoolcraft wherein he gave an account of his own examination of the route in 1823.

The passage beginning on page 179 of Schoolcraft's Thirty Years with the Indian Tribes (reading):

"The reading of books and looking at maps make a fugitive impression on the mind, compared to the ocular view and examination of a country, which make it seem as though we cannot obtain valuable information, or money to serve a valuable purpose, without great personal labor, fatigue, and often danger. This was much verified to my satisfaction, from a view of the Great Western lakes; the interesting position where you are—

3885 Mackinaw, Green Bay, the fine country between Green Bay and Chicago, Chicago itself, and the whole country between the later place and St. Louis.

Without seeing that country, supposed by many to be the region of cold and sterility, I could not have believed there was in it such a store of blessings yet to be drawn forth by the labor and enterprise of men, for succeeding generations." * * * "I regard Green Bay, at the mouth of Fox River, and Chicago, as two very important positions, particularly the latter. For many years I have felt a most anxious desire to see the country between Chicago and the Illinois (river), where it has generally been, ignorantly, supposed that only a small sum would be wanting to open a communication between them. By traveling on horseback through the country, and down the Illinois, I have conceived a different and more exalted opinion of this communication, and of the country, than I had before, while I am convinced that it will be attended with a much greater expense to open it than I had supposed."

3886 When Schoolcraft came to examine the Desplaines, he too was convinced of the fallacy of this information and agreed with Tousey concerning it. In that connection I read from Schoolcraft's Travels in Central Portion of the Mississippi Valley, page 332, the volume heretofore referred to, dealing with the trip to Chicago on horseback. (Reading) (under date of August 14, 1821):

"About ten o'clock in the morning we reached the ford of the Desplaines. We found the river about thirty yards wide and the depth of water two feet. Between this place and the Vermilion, where we left the Illinois, we have seen the river but seldom, although our route has been for the greater part upon its banks. We have, however, seen its channel at a sufficient number of points, to determine that it has several long and formidable rapids, which completely intercept the navigation at this sultry season—a remark that has been confirmed by meeting several traders on the plains, who had transported their goods and boats in carts from Chicago creek, and who informed us, that they thought it practicable to enter the Illinois at Mount Joliet. This would

3887 lengthen the portage to about thirty miles, but it has been perceived that we ourselves began it, far below this last mentioned point. This fact is sufficient to show the error of those who have supposed, that a canal of only eight or ten miles would be necessary, to perfect the navigation between Lake Michigan and the Illinois. A canal of this length would indeed perfect the communication, which already exists at certain seasons, between Chicago creek and the Desplaines, but must fall far short of the grand purpose.

But although our journey has produced a conviction, that the difficulty and expense which will attend this work are greatly underrated; it has also impressed us with a more exalted opinion of this projected communication, and the ability of the country through which it must pass, eventually to complete and maintain it. If the present scanty population and feeble means of this part of Illinois, has convinced us that the commencement and completion of this important work, are more remote than we before supposed, its final execution is not the less certain, and we regard the plan as one entitled to every rational and proper aid."

3888 I observe the statement in Keating that "The length of the Desplaines from its source is about fifteen miles." Stating from memory I should say the passage is inaccurate; the Desplaines rises a greater distance than that from the portage.

Another fact weakening the authority of Keating is
3889 that on pages 164 and 165 of the 1825 edition, there is what I think may be fairly described as a bitter attack upon Schoolcraft's Description of the Country around and near Chicago. Schoolcraft is generally considered an excellent authority. On the whole his account harmonizes with the known facts at the present time, while Keating is largely discredited by these facts.

Motion to strike out the word "bitter," and conclusions with reference to known facts.

3890 The WITNESS (continuing): My attention is called to the reference to Keating, transcript 2855 (Abst., 1161), page 164, beginning, "We were much disappointed at the appearance of Chicago and its vicinity. We found in it nothing to justify the great eulogium lavished upon this place by a late traveler, who observes that 'it is the most fertile and beautiful that can be imagined,'" and ending "consists merely of a plain, in which but few patches of thin and scrubby wood are observed scattered here and there."

My attention is also called to the extract from Schoolcraft's Journal on transcript p. 2858 (Abst., 1162) being from page 384 of Schoolcraft's narrative, beginning with the words "The country around Chicago is the most fertile and beautiful that can be imagined."

3891 Having those statements before me, and being asked on what I base my statement as to Schoolcraft's statement harmonizing with the known facts, I read a portion of Keating's account of Chicago and vicinity, page 164 (reading):

> "The best comment upon this description of the climate and soil is the fact that, with the most active vigilence on the part of the officers, it was impossible for the garrison, consisting of from seventy to ninety men, to subsist upon the grain raised in the country, although much of their time was devoted to agricultural pursuits. The difficulties which the agriculturist meets with here are numerous; they arise from the shallowness of the soil, from its humidity, and from its ex-

3892 posure to the cold and damp winds which blow from the lake with great force during most part of the year. The grain is frequently destroyed by swarms of insects. There are also a number of destructive birds of which it was impossible for the garrison to avoid the baneful influence, except by keeping, as was practiced at Fort Dearborn, a party of soldiers constantly engaged in shooting at the crows and blackbirds that committed depredations upon the corn planted by them. But, even with all these exertions the maise seldom has time to ripen, owing to the shortness and coldness of the season."

Some of those statements are possibly true. I do not argue that everything Keating said on this subject is incorrect or contradicted by facts at the present or authorities in this particular period. Some of those statements are contradicted by other available sources of information.

The Caxton Club edition of Wau-bun, Chapter 17, Chicago in 1831, page 140, reads:

"Beyond the parade grounds, which extended south of the pickets, were the company gardens, well filled with currant bushes and young fruit trees."

3893 (Reading) page 141:

"On the northern bank of the river, directly facing the fort, was the family mansion of my husband. It was a long, low building, with a piazza extending along its front, a range of four or five rooms. A broad green space was enclosed between it and the river, and shaded by a row of Lombardy poplars. Two immense cottonwood trees stood in the rear of the building, one of which still remains as an ancient landmark. A fine, well cultivated garden extended to the north of the dwelling, and surrounding it were various buildings appertaining to the establishment,—dairy, bake houses, lodging house for the Frenchmen and stables."

(Reading):

"In 1816, Mr. Kinzie and his family again returned to Chicago. The fort was rebuilt on a somewhat larger scale than the former one."

I will note that the ensuing passages deal with events following 1816. For example, Wolcott came here in 1820 and was Indian agent until 1830; troops were removed from the garrison in 1823, and so forth.

(Reading, Chapter 20 of Wau-Bun, page 197):

"The few citizens of Chicago in these days, lived for
3895 the most part a very quiet unvaried life. The great abundance of game, and the immense fertility of the lands they cultivated, furnished them with a superabundance of all the luxuries of farm, cornfield and dairy. The question was once asked by a friend in the 'east countrie:'

'How do you dispose of all the good things you raise? You have no market?' 'No.' 'And yet cannot consume it all yourselves?' 'No.' 'What then do you do with it?' 'Why we manage, when a vessel arrives to persuade the captain to accept a few kegs of butter, and stores of corn and vegetables, as a present, and that helps us to get rid of some of it.'"

I now refer to a manuscript, best described as the Mosses Morgan Narrative of the rebuilding of Fort Dearborn in 1816. It is in the handwriting of William R. Head, of Chicago, who has written it down and through whose agency it has come to us. It is signed by him. This manuscript was given by him to Professor Charles
3896 Mann of the Lewis Institute. I am recounting the history of the manuscript as Professor Mann gave it to me.

Objection.

The WITNESS (continuing). Professor Mann was preparing a lecture on the subject of Fort Dearborn, which was delivered before the Chicago Historical Society, and Head, long a citizen of Chicago and Illinois and a prominent official of the Illinois Central Railroad, whose family live on the south side, loaned this particular manuscript to Mann to use in the preparation of his lecture. Head died and Mann deposited it with the Historical Society and it came into my hands. I talked with Head's daughter with reference to these manuscripts. I read from the manuscript (reading):

3897 "During the temporary residence of the writer in Carlinville in the years 1857-1858, he had a cottage built for his family to occupy. It was upon property in Edward's Addition situated east of the cemetery and for many years thereafter occupied by Dr. Glass. Among the carpenters who worked on the building was an old man named Moses Morgan whose home was situated in the same portion of the town, causing us to become

neighbors. The females of our family soon became intimately acquainted although they had known each other several years before, or at about the time the railroad was built from Alton to Springfield (1851). A close and very intimate acquaintance and friendship
3898 soon take place between the writer hereof and Brother Moses Morgan, who was one of the venerable Peter Cartwright school of Methodists of days of old. Beside delighting in hearing religious newspapers read to him, Mr. Morgan had quite a taste for histories and the earlier military items, occasionally printed in the Western Watchman."

That shows the relation between Head and Morgan. The manuscript goes on to state that Wau-bun was once being read in Morgan's hearing, when he stopped the reading with an exclamation. He had been a Sunday school pupil of Mrs. Kinzie's, and helped build the second Fort Dearborn in 1816. His comments upon the story and accounts of his experience follow. I came then to the portion which I wish to read into the record as bearing upon the dispute between Keating and Schoolcraft. The account preceding this particular citation relates to the sending of the expedition here in 1816 for the construction of the second Fort Dearborn. (Reading page 4-a):

"Our troops soon occupied an old pasture near the fort grounds and engaged two half breeds and their squaws, with ponies, and our plows to harrow a little farm, with the aid of our thirty shovels to get vegetables
3899 planted for winter use. The two half-breeds were Robinson and Wilmette (mentioned in Wau-bun). These two Indians, it appeared, were well known in Detroit as being trustworthy if they were sent out as messengers to distant points. A lonely half breed elderly Frenchwoman always worked or traveled with Robinson. She was not old enough to be his mother, she was not his wife, neither was she his sister. It was strange to us that she neither smiled nor thanked the men for their overplus or wasting rations, but she always required Robinson to partake of it before she would touch it." * * * "The gardening undertaking did not prove a success at first. The men found it was commenced too late in the summer (July). The Canadian gardeners who had come from Detroit and planted

in May, brought in vegetables grown four miles up the South creek, and sold them to the officers' mess at high prices. The seeds brought from the east for the use of the garrison were probably old and were very scrupulously dealt out by the quartermaster because a like quantity would be needed for next spring before another vessel would arrive."

3900 Just before this paragraph the manuscript says:

"Our troops soon occupied an old pasture near the fort grounds."

(Reading, p. 4-a):

"One of the Indian trader's business concerns in Detroit, foreseeing the possibilities of a new locality, had already sent some Canadian French farmers or gardeners to find the best ground for framing and starting truck patches for vegetables which would soon be necessary in camp of more than a hundred men, including the workmen."

It is to these Canadian French farmers that I have reference as being located four miles up the South creek, who brought vegetables and sold them to the officers mess.

3902 A further reference throwing light on Keating's accuracy is Jacob Varnum's Journal, the year apparently being 1817, page 51, heretofore identified and used by me. (Reading):

3903 "In July I accompanied Sister Ann back again to Mackinac, and returned August 4th. From this time onward for two years, nothing especially worthy of record occurred. My time was generally taken up, first in superintending the erection of a house for a factory in 1817, attending to my traffic with the Indians, and to my domestic affairs, farming, gardening, etc., and frequently in hunting."

I call attention to a manuscript entitled "Chicago from 1803 to 1812, by General James Grant Wilson, mainly drawn from verbal account of Dr. John Cooper, Surgeon of Fort Dearborn," which was presented to the Chicago Historical Society by Dr. O. L. Schmidt, July 12, 1907, identified by reading from the manuscript, beginning (reading):

"In early life, the writer was well acquainted with a venerable man who spent several years at Fort Dearborn during the first decade of the nineteenth century, having been appointed surgeon of that frontier post by

his friend General Henry Dearborn, then Secretary of
3904 War, in Thomas Jefferson's second administration. With him I had many conversations concerning the early days of Chicago and the northwest. Later when I contemplated preparing a history of the western metropolis, I naturally listened with increased interest to the reminiscences of almost the only survivor among those whose memories extended back to Chicago's earliest decade. Various circumstances conflicting with the carrying out of the historical project after the civil war, chief among which was the writer's return to the City of New York, where he has ever since resided. Most fortunately some memoranda of my medical friend's later conversations were preserved, and chiefly from those notes, the following pages have been prepared more than two score years after the venerable physician and pioneer passed away at Poughkeepsie on the Hudson, his home for half a century.

Dr. John Cooper's grandfather, who was an Englishman, accompanied the British Army to Quebec, where he fought under General Wolfe, and was near the hero when he fell in the hour of victory. He did not return to his native land, but left the service and settled as a farmer in Ulster County, on the banks of the Hudson. The grandson was born at Fishkill, in the adjoining County of Duchess, June 6th, 1786, studied medicine, and entered the United States Army as a surgeon June
3905 13, 1808, almost immediately receiving orders to proceed to Fort Dearborn. From Washington he went by way of New York and Albany early in July to Buffalo, where he boarded the United States Brig, 'Adams,' commanded by Commodore Henry Brevort. The voyage across Lake Erie occupied a week, another week was spent in passing through the river and Lake St. Clair, including two days delay at Detroit, and arriving at the Island at Mackinac. The brig remained there several days, and then proceeded, via Green Bay to Chicago, which voyage occupied an additional three days, the time spent by Cooper in reaching his destination from Washington, being a greater number of days, than would require hours at the present period."

I am not certain that James Grant Wilson is not still living. He was a resident of Chicago for a time pre-

ceding the civil war, when pursuant to a plan to write a history of Chicago he collected various manuscripts and documents, among others the transcript of the names in the account books of John Kinzie. Wilson went to war, rose to the rank of General and never returned to Chicago, but re-
3906 sided in New York until recently. Upon the Centennial of the founding of Fort Dearborn he returned some of these manuscripts, among them the letter which I am reading. He has been for many years prominent in the literary and social life of New York; he contributed articles to the American Historical Review and has been president of the Author's Club. (Reading from manuscript):

"The garrison of Fort Dearborn then consisted of ninety-six men of the First United States Infantry, commanded by Captain John Whistler, with Lieutenant Joseph Hamilton of Maryland and Robert Thompson of New York, who died during Surgeon Cooper's term of service at the post. The fort consisted of four log houses used as barracks, and two block houses, one containing two guns, the other one cannon, with several hundred stands of small arms, the whole surrounded
3907 by a palisade some twelve feet high, surmounted by Crow's feet of iron. The officer's gardens, in which large quantities of melons and other small fruit and vegetables were raised, extended south from the fort. At a short distance to the southwest, were two log houses, one occupied by Mathew Irwin, the United States factor or contractor, and the other by the Indian Agent, Charles Jewitt. A mile or more to the southwest was the home of a small farmer, who supplied the officers with butter and eggs. At the fork of the Chicago river, there was a house belonging to a man named Clark, who was a cattle dealer, and was occasionally employed about the fort. On the north side of the river there were four log houses. One nearly opposite to the post was the home and shop of John Kinzie, the Indian trader, who came from Canada."

This manuscript was the property of the Chicago Historical Society.

3908 I now call attention to manuscripts owned by the Chicago Historical Society, known as the Kingsbury papers, or letterbooks of Col. Jacob Kingsbury, an officer of the U. S. Army, in command of various posts here in

the northwest approximately during the period of the existence of the first Fort Dearborn. Among others he was at Michillimackinac and Detroit, and a considerable portion of the time a superior officer in charge of a group of forts, which included Fort Dearborn, Fort Wayne, Mackinac and Fort Detroit, including authority over what Kingsbury styles in the manuscript the navy of the lakes, consisting of one brig, I believe, the Adams, just referred to in the Cooper-Wilson letter. The letterbook does not comprise the original letters, but is like those men of that period were in the habit of keeping. For instance, Polk kept a letterbook, and in his diary he frequently says "see my letterbook," as authority for following out this reference and giving further information on it. It contains copies of original letters which would be used by historians as though they were originals.

3909 They are in handwriting. Do not know whether they are in Col. Kingsbury's handwriting; they are not all in the same handwriting.

I was just going to say with reference to the illustration I used: President Polk's letterbook was kept by his private secretary, J. Knox Walker, and so most of the letters so far as they have been preserved, would be in Walker's handwriting, and in the Polk paper's which are now in the Library of Congress, some of the papers appear there in Polk's own hand and some in the hand of his secretary. Some of the latter are annotated or labeled by President Polk showing evidently that he looked upon them as being in every respect the same as the original letters.

These particular manuscripts were purchased some years ago by the Chicago Historical Society. I have not the

3910 exact details as to whom they were obtained from or under what circumstances. It was considered that the Society gained a distinct prize in the possession of these papers. If it is not presumptuous from my use of these letters, aside from what Professor Mann has done, would say, historians regard these as the original letterbooks of Colonel Kingsbury. They have been reserved for my use by the Society.

Motion to strike out the remarks as to what the Society considers.

3911 The WITNESS (continuing). On the outer cover is Letter Book Number 4, Colonel Jacob Kingsbury's letterbooks commencing 22nd May, 1810," evidently written at

the time from the appearance of the writing. On the other side is a title in ink, as follows: "Copies of letters received by Colonel Kingsbury since the 20th May, 1810." Its appearance would lead one to decide that it is contemporaneous with the writing in the letterbook.

Objection; incompetent, irrelevant and immaterial.

The WITNESS (continuing). I call attention to letter No. 11.

3912 "Fort Dearborn, 31 May, 1810.

Sir:

I arrived here on the 23d inst. and have taken command of the post by order of the Honbl. Secretary of War. To do justice to Captain Whistler I cannot but observe that I think he has paid particular attention to every Part of his duty since he has commanded this Post. I found the garrison clean and in good order, the company performs their exercise well, their clothing, Arms &c., in Good Order. It is probable you have been informed that he has been in the habit of raising large Quantities of Corn; he has now not more than two and an half acres planted and I am informed that he has never planted more than Quantity in a year since he has been here. Herewith enclosed is a monthly of the Garrison & an Inspection Return of the Company for May, 1810.

I am, sir,

Very respectfully,
Your most Obdt. Servt.
(Signed) N. HEALD,
Capt.

Col. Jacob Kingsbury,
Commandant,
Detroit."

3913 From the opposite side containing copies of letters written by Col. Kingsbury, I read letter No. 15 (reading):

"Fort Detroit, Michigan Terrty.
11 June, 1810.

Dear Sir:

I received yours of the 31st ult. with a Monthly and Inspection Return by Capt. Whistler. I was happy to hear that you found the Garrison clean and in good order. With respects to Capt. Whistler's raising large

quantities of Corn, I have been induced to believe for some time past, that his enemies have reported his having ten acres of Corn when he had but two or three. Herewith is enclosed a copy of a general order respecting the Issues of Fresh meat to the troops."

Captain Whistler was the first commander of Fort Dearborn, coming here in 1803 and building the fort, and remained in command until the time approximately indicated by these letters, being succeeded by Captain Heald, who arrived in April, 1810. He was removed because a quarrel devel-
3914 oped between the officers of the garrison. Whistler's enemies made the charge against him referred to in these letters, that he was raising a large quantity of corn here each year, ten or twelve acres. Heald came and found that he had not over two and a half acres and was led to believe that he had never put in more than that amount. Evidently it was possible to raise corn at Fort Dearborn from 1803 to 1812, or else the charge of his enemies would have been unreasonable and therefore not made and the statements as to a smaller quantity impossible.

Motion to strike out.

Q. State if you know, what was the objection to his raising ten acres of corn?

Objection; he must give sources of his information.

A. The sources concerning life at Fort Dearborn at this time are few, hence the value which attaches to the Kingsbury manuscript.

3915 Speaking from my general knowledge of the situation at Fort Dearborn in this period, I understand that Whistler's enemies charged that he was using his position as commander at Fort Dearborn to raise a considerable quantity of corn each year to his own private profit.

3916 Motion to strike out; source of information should be produced.

Q. What do you infer was the impropriety of raising corn for himself, and in what did it consist?

Objection; not a matter for testimony of a historical expert.

A. My conclusion, formed at a time when I had no connection with this case, was that it was an improper if not dishonest operation, to take advantage of his official position to raise a crop of corn which he considered and used as his own private property.

Q. Is there anything to indicate through whose labors the corn was raised?

Objection; passages speak for themselves.

The WITNESS. I have no reference in mind which would indicate.

3917 Commanders of posts, as Whistler was were not in the habit of engaging in manual labor, such as raising corn. Therefore, I infer that the soldiers of the Garrison were employed in that labor. Keating seems to have something of this sort in mind when he says the soldiers were not able to raise enough to supply themselves with provisions.

3918 Further on the question of Keating's authority I have here a volume entitled "Senate Documents, 1st Session 24th Congress," 1835 to 1836. In this volume, document No. 333, is entitled: "Report of a Geological Reconnoissance made in 1835, From the Seat of the Government, By the Way of Green Bay and the Wisconsin Territory, To the Coteau De Prairie, An Elevated Ridge Dividing The Missouri From The St. Peter's River. By G. W. Featherstonehaugh, U. S. Geologist." This document has been identified. Featherstonehaugh was an Englishman; Geolo-

3919 gist by profession. He came to the United States with the idea of putting the science of geology upon a foundation here; he established a geological journal which he edited for some years; was engaged on two different occasions to make geological reconnoissances for the U. S. Government. This document is an official report of one of them. In addition he was employed as an expert to pass on certain phases of the dispute between the United States and Great Britain over the boundary line between Maine and New Brunswick, finally settled by the Webster-Ashburton treaty 1842. He returned to England and in 1847 he published a volume entitled "A Canoe Voyage up the Minnay Sotor," with an account of the lead and copper deposits of Wisconsin, etc., by G. W. Featherstonehaugh, in two Volumes—Volume 1, Richard Bentley, London, 1847.

3920 These two volumes in a general way restate the results of Featherstonehaugh's observation on his various expeditions, reported to the U. S. Government.

Taking up the Senate document; Featherstonehaugh went by way of the Great Lakes, stopping at Mackinac and the Fox-Wisconsin route to the Mississippi, then up the Mississippi to Fort Snelling, and thereafter to the sources of the

St. Peters river. He followed approximately the route taken by Long's expedition in 1823, so far as that followed the Mississippi and St. Peters rivers.

3921 Featherstonehaugh then checked up Keating's account of Long's expedition and at various points made criticisms of more or less importance and seriousness, some of which I read. (Reading page 128):

"Beyond Ball-game river, on the left bank, is an important stream, named Black river, down which stream a great deal of fine pine timber is floated. The country all around here is remarkable for its fertility and beauty. The most conspicuous locality on this portion of the upper Mississippi, is a place called by the French La Montague qui trempe a l'eau, or the mountain which is steeped in the water. I ascended to the top of this peak, which has a steep ascend of about 500 feet; the crest at the top runs about north and south for 200 yards, and is not more than three or four yards

3922 wide, falling off in a precipice to the west, and having a sharp slope of rich soil to the east, well covered with trees and shrubs. From the top there is an extensive view of the course of the Mississippi and the country in the interior beyond its banks. The same constant character of the valley is observed here; a rich bottom, two or three miles wide, broken into islands and swamps and ponds, and the main channel of the river flowing down between Trempe a l'eau and the right bank, about 1,200 yards wide. This curious peak has been represented as 'a rocky island, separated from the left bank of the river,' and to be 'very near the east bank of the river.'"

Here there is a footnote reference to which I turn and read:

"Keating's Narrative of an Expedition, &c., vol. 1, p. 271."

Continuing then with the direct citation from Featherstonehaugh (reading):

"This error was no doubt occasioned by the writer's looking at it from the right bank and not stopping to examine it. It is, in fact, an isolated bluff, about a mile and a quarter in circumference, separated from the right bank, and not from the east, the intervening space being occupied by the present main channel."

3923 (Reading, page 142):

"Having reached the Makato, it became my duty to enter it. Expectations had been raised by the publication of Major Long's expedition, respecting some supposed copper mines which M. LeSuer was said to have discovered about the beginning of the eighteenth century, not far from its mouth, and which Major Long, in passing up the St. Peter's, had not visited. The following passage, with others, in the publication in question, gave so much importance to the affair, that it was deemed proper to make an investigation of the locality part of my instructions."

Here I turn to footnote references to the foregoing paragraph, and read the first:

"Narrative of an expedition to the sources of St. Peter's river, &c.; 2 vols. 8 vo. By William H. Keating, Philadelphia, 1824."

And the second (reading):

"Vol. 1, p. 316."

3924 From what follows Featherstonehaugh comes to the conclusion that the copper mines did not in fact exist.

Objection; statement speaks for itself.

The WITNESS (continuing). In view of the objection I read page 142 (reading):

"Charlevoix states that LeSuer was sent by M. D'Iberville to make an establishment in the Sioux country, and to take possession of a copper mine LeSuer had there discovered. He ascended the St. Peter's 40 leagues, to la riviere Verte, which comes in on the left. Though only the last of September, the ice prevented him from ascending that river more than a league; he therefore built a fort, and spent the winter at that spot. In April, 1702, he went up the riviere Verte to the mine, which was only three-quarters of a league above his winter establishment. In twenty-two days they got out more than thirty thousand pounds of ore, of which four thousand pounds were selected and sent to France. The mine was at the foot of a mountain ten leagues long, that seemed to be composed of the same substance. After removing a black burnt crust as hard as rock, the copper could be scraped with a knife.' A manuscript in the possession of the American Philosophical Society, written by M. Benard de la Harpe,

is also cited: 'It appears from this manuscript that Le Suer's discoveries of blue earth were made in 1695,
3925 but that all further operations were interrupted until 1700. We find in the same manuscript, under the date of the 10th of February, 1702, that Le Suer arrived at the mouth of the Mississippi that day with two thousand quintals of blue and green earth.' The same manuscript is also said, in giving the details of Le Suer's progress up the Mississippi, to state: 'Finally, on the 19th of September, he left the Mississippi, and entered the St. Peter's river, which comes in from the west bank. By the 1st of October he had ascended this river forty-four and a quarter leagues, when he entered the Blue river, the name of which is derived from the blue earth, found on its banks.' 'On the 26th M. Le-Suer went to the mine with three canoes, which he loaded with green and blue earth. It was taken from mountains near which are very abundant mines of copper, of which an assay was made in Paris by M. L'Huillier, in the year 1696.'

I had, through my guide (Milor), neglected no opportunity to inquire amongst the Nacotahs respecting these mines, but I never could obtain any information, or even a traditional report, of anything like a copper mine in that region. Many of the chiefs concurred in saying that there were some bluffs a few miles beyond the mouth of the St. Peter's, to which the Indians had, at all times, resorted to procure a blue earth with which
3926 they were accustomed to paint themselves; and one old chief had described the locality with great precision. He was very well acquainted with the whole country between the St. Peter's and the Missouri, and had often crossed the Coteau de Prairie, but he had never heard of or seen anything like copper. This, however, was not particularly discouraging, as Le Suer's mineral was described as being a green and blue earth; and it might very well be an oxyde or carbonate in the carboniferous limestone, as it is found in the Wisconsin territory. I therefore entered the Mankato with some confidence. Its waters were extremely discolored, and I immediately saw they were the cause of the turbid state of those of the St. Peter's. When we had proceeded about a mile, we found a family of Nactotahs, of the Sissiton tribe,

encamped on a sandbar, taking care of some venison they had just killed. The locality I was in search of was well known to them, and they gave us very intelligible directions. The current was exceedingly strong, running about two miles an hour, and the stream appeared to furnish about one-half of the volume of the St. Peter's. About three miles from the entrance of the river there is a singular conical hill covered with grass on the right bank, which I thought a very probable situation for M. Le Suer's Fort L'Huillier, and I should have landed to examine it but for my anxiety to reach
3927 the blue earth locality, and on account of the weather, the snow falling as we passed it (September 22). Near six miles from the mouth, a fork of the river came in from the left bank, about forty-five yards wide, on the right bank of which is a ridge of from eighty to one hundred feet wide, very well wooded, and fronting a prairie on the opposite side. We found very little current, the main stream having forced it back for some distance. About two miles up this fork, we at length came to a bluff, about one hundred and fifty feet high, on the left bank, containing the blue-earth locality. On climbing it, I found the same horizontal sandstone and siliceous sandstone common to the whole country. Towards the top was a broad seam of bluish clay, intermixed in places with silicate of iron, being a continuation of the deposits I had seen before at Myakah, and valuable only for the savages to paint themselves with. From this bluff, I advanced in a westerly direction about two miles, over a part of the country grown up with small poplars, hazels, wild roses, and grass, in the hope of seeing the Coteau de Prairie, and making arrangements to proceed to it from this quarter; but I saw nothing of the kind from any eminence which I could gain; and having in my hand, and reading on the spot, what had been said of M. Le Sueur, his mountains, and his copper mines, I found myself obliged to come to the
3928 conclusion that these discoveries were fables invented to give him influence at the court of France. Before I left the northwest country, and after I had visited the Coteau de Prairie I found it was distant at least sixty miles from this spot, which leaves only the bluffs of the river to represent the mountains spoken of in the manuscript of La Harpe."

I call attention to this part of Featherstonehaugh's report to show that he was himself checking up Keating and saw reason to take issue with him on this particular point.

In another volume is a criticism of Featherstonehaugh on this particular point, it being stated that he missed the real point of issue, which was whether Le Sueur was ever on St. Peter's river. Do not express my approval or disapproval of this particular selection from Feather-
3929 stonehaugh. The other reference is Elliott Coues' Expedition of Zebulon M. Pike. I now read from page
153 (reading):

"In this part of the northwest territory it is very seldom that trees are found where there is no water. The first care of the traveler, in a region where there is nobody to assist him, is selfpreservation; his prin-
3930 cipal attention, therefore, is directed to trees, especially at the setting in of winter; without fuel he would be frozen to death in the night, and fortunately where there is fuel there is also water, unless it has been absorbed. The course of the small streams which form the principal sources of the St. Peter's, is along the wooded lines on the flanks of Chhray-tanka, or the Great Hills, the name given by the Nacotahs to the Coteau. This word is pronounced very gutteral and rapid. Wherever those dark spots and lines were seen on its side, water was generally found. On these extensive plains objects are deceptive, from there being nothing to compare with them. An eminence at a distance will appear two hundred feet high, which, when reached, will not be fifty. A prairie-wolf looks, when running, like a deer; a small rock like a buffalo. I have seen an antelope rear up on its hind legs, as they always do to look at objects, and could have thought it a camelopard. At a distance of fifteen miles the Coteau looked like a lofty chain. Mr. Keating assigned to it a height of one thousand feet. The illusion was dispelled as soon as I came near it. The ascent is so gentle at the place where I began to ascend, that I was hardly aware I was going up hill. The ascent perhaps continues two and a half miles, and is not more than at the rate of one hundred and sixty feet to the mile. I do not suppose the Coteau to rise more than four hundred and fifty feet above the level of the upland prairie."

3931 I now call attention to the volume I have identified, entitled "A Canoe Voyage Up The Minnay Sotor, "By Featherstonehaugh, Vol. 1, page 289, the page heading being "Injustice Done to Carver." (Reading):

> "The river now wound through a rich bottom, and was about one hundred yards wide. We passed a small prairie on the left bank, estimated to be twelve leagues from the fort, the edge of which is only twelve feet above the river. At nine we stopped to examine a stream on the left bank, with a strong current not more than twenty feet broad. Its waters were low, but, from the height of the banks, it was evident that the volume of water is large in the season of floods. Milor said the Indians called it Lodododah, or the 'Singing of War,' from the Nahcotahs once assembling to sing the war song there? It is the same distance that Carver assigns to the river which he has given his own name to."

Here is a footnote which is as follows: "Carver's Travels, 1778, p. 74."

(Continuing reading):

> "And I suppose it to be the same.
>
> In the narrative of Major Long's interesting expedition to Lake Winnipeg, &c., Carver is slightingly spoken of, and I think great injustice done to him. It is true
3932 that, like many travellers, he has fallen into mistakes when venturing to give a detailed account of wild, unexplored countries, which had not fallen under his immediate notice; but he certainly visited the countries he has described, and must have been a person of great energy and courage, to attempt the journeys he performed at that particular period. I have great pleasure in saying, that, having followed him to the extent of his journey, with his book in my hand, I can express my confidence in him."

I now call attention to Schoolcraft's "Thirty Years with the Indian Tribes," pages 524-525, being the entry in Schoolcraft's Journal of November 2nd 1835, giving an account, with citations, of a letter received by him from Featherstonehaugh, containing statements bearing on Keating's account of the Mississippi and St. Peter's, wherein Featherstonehaugh says he found Keating's account surprisingly erroneous and takes occasion to approve of Carver's book which he says Keating was constantly denouncing.

Motion to strike out witness' paraphrasing of the work.

3933 The WITNESS (continuing) (reading):

"I found Mr. Keating's account of the Mississippi, and especially of the St. Peter's, most surprisingly erroneous, and old Jonathan Carver's book, which he is constantly denouncing, very accurate."

3934 I read from Featherstonehaugh's Canoe Voyage up the Minney Sotor, page 241. (Reading):

"I had read with some interest, in Carver's travels, an account"—and here there is a footnote, a citation from Carver which I shall not take the time to read unless called for—"of some curious remains of fortifications, which he had seen 'some miles below Lake Pepin,' but I had not been able to find anyone who could corroborate his account. We were now, by computation, very near the locality, and judging him to refer to the right bank of the river, although he does not say so, I frequently stopped, and either went or sent someone to take a look at the country from the top of the bank. L'Amirant having told me there was an extensive prairie not far from Roque's, on reaching it about noon I landed there, and ascending the bank, perceived, through some evergreen trees, unusual elevations about a mile and three-quarters off. Directing the boat to wait for me, I immediately walked across the prairie, a distance of about two miles, and on reaching them entertained no doubt that this was the remarkable locality seen by Carver. It certainly was a very curious place. The prairie was entirely level as far as these elevations, and the surface was completely composed of dusty sand, covering a black alluvial mould.

The first of these certainly had the appearance of an ancient military work in ruins; it had a steep sandy
3935 slope to the top, and resembled a very irregular work, entirely covered with drifted sand, consisting of something like three bastions and various salient angles. Inside of the work was a large cavity, and a slope of twenty yards to the bottom. There seemed also to be the remains of terraces. Outside was what might, perhaps, without exaggeration, be called a ditch, whether made by men or the wind, with a terrace of eight paces broad to the northeast. The inside of the cavity was about

seventy paces in diameter, and the whole elevation was 424 paces in circumference. Distant from this about 700 paces south-southeast was a second, resembling it in form and size, and about 700 paces east-southeast from this last was a third, the largest of the three, being 1,100 paces in circumference, having, like the others, what represented bastions and salient angles, and being capable of containing 1,000 people. Its walls appeared lofty when standing on the outside, and there was a deep ditch on the south side. Further to the south I counted six more. Nor was there wanting what an observer might fairly call a communication from one to the other and to the river, for the ground was thrown up all the way to it. From the highest point at which I stood I could distinguish a line of similar elevations extending at least four miles.

At the northern end of this singular assemblage of elevations they most appeared to have been the work
3936 of art, whilst at the southern termination they gradually passed into an irregular surface, and became a confused intermixture of cavities and knolls, that I think might be satisfactorily accounted for by the blowing of sand. In this part, as Carver observes, were still a great number of straggling oaks.

It is possible that all this may have been done by the wind blowing a decomposed sandstone into these forms; but from the limited opportunity which I had of examining these appearances, I was far from being convinced of this. The substance of the prairie was a vegeto-alluvial deposit, having a light covering of sand upon it; and if it was the wind which had thus distributed the sand so evenly upon the surface, how are the raised lines which are continuous down to the river, and the elevations which so much resemble fortifications, to be accounted for? The same wind could hardly at one time lay the sand equally upon the prairie, and at another build up structures so much resembling works of art. Those, however, who think so after personal inspection, are bound to satisfy themselves why the wind has not produced similar effects upon the surface in other parts of this extensive prairie? It is difficult to suppose a force of that kind proceeding uniformly to produce effects that so extremely resemble a line of de-

fense constructed by a barbarous people. But after all comes the question,—what were these fortifications
3937 intended to defend? Carver certainly talks somewhat extravagantly when he speaks of their being fashioned with the skill of a Vauban. I regretted not having leisure to dig about them; but the sand was so blown over the whole, that it would have required a great deal of time to clear only a very small space away. Hereafter, when this curious place becomes more known and investigated, if Indian antiquities should be discovered commensurate with the extent of the work, such as the stone instruments and weapons of offense usually found about Indian encampments, it would decide the question."

Footnote, quotation from "Travels through the Interior Parts of North America in the Years 1766, 1767, 1768. By J. Carver, Esq., pp. 57, 58. London, 1778." (Reading):

"One day, having landed on the shore of the Mississippi, some miles below Lake Pepin, whilst my attendants were preparing my dinner, I walked out to take a view of the adjacent country. I had not proceeded far before I came to a fine, level, open plain, on which I perceived, at a little distance, a partial elevation, that had the appearance of an entrenchment. On a nearer inspection, I had greater reason to suppose that it had really been intended for this many centuries ago. Notwithstanding it was now covered with grass, I could plainly discern that it had once been a breastwork of about four feet in height, extending the best part of a mile, and sufficiently capacious to cover
3938 5,000 men. Its form was somewhat circular, and its flanks reached to the river. Though much defaced by time, every angle was distinguishable, and appeared as regular, and fashioned with as much military skill, as if planned by Vauban himself. The ditch was not visible, but I thought, on examining more curiously, that I could perceive there certainly had been one. From its situation, also, I am convinced that it must have been designed for this purpose. It fronted the country, and the rear was covered by the river, nor was there any rising ground for a considerable way that commanded it—a few straggling oaks were alone to be seen near it. In many places small tracks were worn across it

by the feet of elks and deer; and from the depth of the bed of earth by which it was covered, I was able to draw certain conclusions of its great antiquity. I examined all the angles and every part with great attention, and have often blamed myself for not encamping on the spot, and drawing an exact plan of it. To show that this description is not the offspring of a diseased imagination, or the chimerical tale of a mistaken traveler, I find, on inquiry, since my return, that Mons. St. Pierre and several travelers have, at different times, taken notice of similar appearances, on which they have formed the same conjectures, but without examining them so minutely as I did. How a work of this kind
3939 could exist in a country that has hitherto (according to the generally received opinion) been the seat of war of untutored Indians alone, whose whole stock of military knowledge has only, till within two centuries, amounted to drawing the bow, and whose only breastwork even at present is the thicket, I know not. I have given as exact an account as possible of this singular appearance, and leave to future explorers of these distant regions to discover whether it is a production of nature or art."

Going back to my discussion of the validity of Keating's and Carver's accounts, I have here "The American Historical Review, Volume 11, Number 2, January 1906," J. Franklin Jameson, Editor, containing an article entitled "The Travels of Jonathan Carver," by Edward G. Bourne,
3940 page 287. Bourne subjects the book to such a critical examination as a skilled historian would give to a work he is undertaking to estimate. He concludes that parts of Carver's Travels are not authentic and that their standing among historians has been generally overrated. Bourne was regarded as one of the leading historical students of America at the time of his death, and had an especial reputation as a keen critic.

I go into his criticism of Carver to follow out to some of their conclusions the lines suggested by his study. On page 291 he points out (reading):

"The work proper consists of an 'Introduction,' 'A journal of the Travels' comprising 164 pages, and a treatise 'Of the Origin, Manners, Customs, Religion, and Language of the Indians' comprising 346 pages,

3941 with a short geographical appendix. It is this second and larger part, constituting a fairly complete natural history of the upper Mississippi valley, that has given Carter's Travels its position in the literature of primitive America."

This second and larger part is entitled "Of the origin, manners, customs, religion, and language of the Indians.

Reading further from Bourne:

"It is also this second part that invites a more detailed critical examination than it has yet received."

Bourne then points out the circumstances under which his attention was called to the possible lack of authenticity and validity of Carver's travels. I now read from page 292 (reading):

"A year or two later, in reading Greenhow's History of Oregon, I ran across a more detailed and explicit impeachment of Carver's Travels. Greenhow declared that the longer second part, on the Indians, animals, and plants, etc., is extracted almost entirely, and, in many parts, verbatim, from the French journals and histories. The book was written or rather made up, at London, at the suggestion of Dr. Lettson and other gentlemen, and printed for the purpose of relieving the wants of the author, who, however, died there, in misery, in 1780, at the age of 48."

3942 There is a footnote No. 2, "Robert Greenhow, The History of Oregon and California, etc. (Boston, 1844), 142, note."

Greenhow's criticism of Carver is devoted to the second part.

I read what Bourne has stated from Greenhow by way of criticism of Carver (reading p. 292):

"In proof that no injustice is here done to Carver's memory, read his magisterial and contemptuous remarks on the works of Hennepin, Lehontan, and Chalevoix, in the first chapter of his account of the origin, manners, etc., of the Indians; and then compare his chapters describing, as from personal observation, the ceremonies of marriage, burial, hunting, and others, of the natives of the upper Mississippi countries, with those of Lahontan, showing the conduct of the Iroquois, of Canada, on similar occasions, by which it will be seen that Carver has simply translated from Lahontan the whole of the accounts, even to the speeches of the chiefs.

3943 Carver's chapter on the origin of the Indians is merely an abridgement from Charlevoix's 'Dissertation' on the same subject. His descriptions of the language, manners, and customs, of the inhabitants of the Upper Mississippi regions, are entirely at variance with those of the same tribes at the present day, as clearly shown by the observations of Pike, Long, and other persons of unquestionable character, who have since visited that part of America. Keating, in his interesting narrative of Long's Expedition in 1823, expresses his belief that Carver ascended the Mississippi to the Falls of St. Anthony, that he saw the St. Peter, and that he may have entered it; but, had he resided five months in the country, and become acquainted with the language of the people, he would not have applied to them the name of Naudowessies, and omitted to call them the Dacota Indians, as they style themselves."

I now read from Bourne (reading):

"In regard to Keating's Narrative of Long's second expedition it may be added that in it the indebtedness of Carver's Travels to Lahonton was brought to public notice in 1824."

3944 Footnote 1 reads (reading):

"William H. Keating, Narrative of an Expedition to the Source of St. Peter's River, Lake Winnepeek, Lake of the Woods, etc., etc., * * * under the command of Stephen H. Long (Philadelphia, 2 vols., 1824, I. 323-324."

Continuing Bourne's study (reading):

"This is the earliest published impeachment of the originality of the Travels that I have met with. More specific were the charges noted by Henry R. Schoolcraft in his 'Journal' under the date of April 9, 1823, upon completing a careful perusal of Hennepin, La Honton, and Carver, undertaken when he expected to be selected to head the expedition to explore the St. Peter's River which was conducted by Long."

3945 I now turn to Schoolcraft's Thirty Years with the Indian Tribes, cited by Bourne, pages 168-169. Schoolcraft criticises Carver in certain respects. He states he thinks Carver made travels he claims to have made, that he afterwards came to want in England and fell into the hands of booksellers, who pieced out his books by plagiarizing from La Hontan, Charlevoix, and others, and in this way that portions

of Carver's work are not to be ascribed to him, and is not original.

Motion to strike out paraphrasing of Schoolcraft.

The WITNESS (continuing) (reading):

"Life has more than one point of resemblance to a panorama. When one object is past, another is brought to view. The same correspondent adds: 'Mr. Calhoun has come to the determination to authorize you to explore the River St. Peter's this season. I think you may safely make the necessary arrangements, as I feel confident the instructions will reach you soon after the opening of the navigation.'

'In consequence of this intimation, I have been casting about to find some authors who treat of the region
3946 of country which embraces the St. Peter's, but with little success. Hennepin's Discovery of a large Country in the Northern America, extending about four thousand miles,' I have read with care. But care indeed it requires to separate truth from error, both in his description and opinions. He thinks 'Japan a part of the American continent'; and describes the Wisconsin as 'navigable for large vessels above one hundred leagues.' Yet, notwithstanding this gross hyperbole, he describes the portage between the Fox and Wisconsin at 'half a league,' which is within the actual distance. It may be admitted that he was within the Sioux country, and went up the Mississippi as high as the St. Francis.

La Honton, whose travels were published in London only a few years after the translation of Hennepin's, is entitled, it is believed, to no credit whatever, for all he relates of personal discoveries on the Mississippi. His fiction of observations on 'River La Long,' is quite preposterous. I once thought he had been as far as Prairie du Chien, but think it more probable he never went beyond Green Bay.

Carver, who went from Boston to the Mississippi in the latter part of the 18th century, is not an author to glean much from. I, however, re-perused his volume carefully, and extracted notes. Some of the stories in-
3947 serted in his work have thrown an air of discredit over it, and caused the whole work to be regarded in rather an apocryphal light. I think there is internal evidence enough in his narrative to prove that he visited the chief portions of country described. But he probably

neglected to keep diurnal notes. When in London, starvation stared him in the face. Those in office, to whom he represented his plans, probably listened to him a while and afterwards lost sight of, or neglected him.
3948 He naturally fell into the hands of the booksellers, who deemed him a good subject to get a book from. But his original journal did not probably afford matter enough, in point of bulk. In this exigency, the old French and English authors appears to have been drawn upon; and, probably their works contributed by far the larger part of the volume after the 114th page (Philadelphia ed. 1796), which concludes the 'Journal.' I think it questionable whether some literary hack was not employed, by the booksellers, to draw up the part of the work 'On the origin, manners, customs, religion, and language of the Indians.' Considerable portions of the matter are nearly verbatim in the language of Charlevoix, LaHontan, and other authors of previous date. The 'Vocabulary of Chippewa' so far as it is Chippewa at all, has the French or a mixed orthography, which it is not probable that an Englishman or an American would de novo, employ."

I now read from Bourne, page 294; the connection of this citation being that in the preceding pages he has referred to several criticisms of Carver, which have just been read into the record (reading, p. 294):

3949 "It is an interesting illustrating of the elusiveness of much important historical information that not one of these four destructive criticisms of Carver's Travels ever caught Professor Tyler's eye during his many years of reading in American literature, and that not one of them is referred to in any of the articles in the many works of reference that I have consulted on Carver. Yet it is obvious that, if Greenhow's assertions are sustained, Carver's Travels, whatever their literary charm, must cease to be considered an original work."

3950 In this paragraph the word "travels" as referring to Carver's book, is italicized, Bourne having in mind the title of the book rather than the actual act of Carver having made the travels as described in the first portion. The four criticisms just read seem to make this clear.

Motion to strike out interpolation as incompetent, immaterial and irrelevant.

The WITNESS (reading):

"That Carver's first chapter, on the 'Origin' of the Indians, is merely an abridgement of Charlevoix' 'Preliminary Discourse on the Origin of the Americans,' with some additions from James Adair's The History of the American Indians, will not be disputed by any one who compares them. As this chapter, however, is a summary of scholarly opinion, it might be urged that the most to be said is that if Carver wrote it he was too careless of the rights of literary property. But if Carver borrows his learning from Charlevoix, he was not less dependent upon him and upon La Hontan for his observations of Indian life, although he asserts with some parade." Here follows a quote from Carver.

(Reading, Bourne, p. 299):

3951 "The examples that have been given, a few out of many that might be cited, are sufficient to show that the allegations of Greenhow, and the conjectures of Wolcott and Schoolcraft were fully justified, and that the second part of Carver's Travels is essentially a compilation from La Hontan, Charlevoix, Adair, and other sources which I have not yet identified."

It is the second part of Carver's Travels which Bourne here condemns (reading, Bourne, p. 300):

3952 "Turning now to the first part or the narrative proper of Carver's Travels, is it a genuine record of experience and did he write it, or was it written by another from his memoranda or oral recollections? So far as I can judge by literary evidence, I should reply that Carver was the source rather than the author of the narrative. The style of the first part is fluent literary English, and apparently is from the same hand as the descriptive matter in the second part. To pronounce upon the worth of this part of the book first-hand intimate knowledge of the field of observation is required. This qualification William H. Keating, the scholarly and painstaking geologist and historian of Long's expedition to the source of St. Peter's River in 1823, possessed in a high degree. The members of Long's expedition naturally gave Carver's account a more critical scrutiny under more favorable conditions than has been the case since or is likely to be in the future. Their general judgment is unfavorable. In general it is remarked: 'No gentleman of the party would be willing to ascribe

to Carver a scrupulous adherence to truth, (personal observation having convinced them all of the many misrepresentations contained in his work.)' "

There is a footnote to the sentence reading, "The members of Long's expedition naturally gave Carver's account a more critical scrutiny under more favorable conditions," etc., which reads (reading):

"The late Dr. Elliott Coues in the notes to his The Expeditions of Zebulon Montgomery Pike (New York, 1895) repeatedly quotes Carver and expresses a favorable opinion of his narrative. He does not refer, however, to part II."

3953 Another footnote to the last sentence of the preceding excerpt (Bourne, p. 300), which reads: "Personal observation having convinced them all of the many misrepresentations contained in his work," the reference is as follows (reading):

"Keating, Long's Expedition (Philadelphia, 1824), 1, 277."

From this citation from Bourne's study, it appears that he expressly disqualifies himself as being able to pass critically upon the first part of Carver's Travels. Bourne fell into a serious error, for he points out:

"To pronounce upon the worth of this part of the book firsthand, intimate knowledge of the field of observation is required. This qualification William H. Keating, the scholarly and painstaking geologist and historian of Long's Expedition to the source of St. Peter's River in 1823, possessed in a high degree. The members of Long's expedition naturally gave Carver's account a more critical scrutiny under more favorable conditions than has been the case since or is likely to be in the future."

3954 Featherstonehaugh, of equal repute, and standing, in his profession with Keating, did make such an examination as Bourne thought necessary, and he made it with Keating's and Carver's accounts of their travels with him, and checking them up, as appears in his report, he came to the conclusion, as pointed out in the citation from his letter to Schoolcraft, that Carver was more accurate than Keating, who had so savagely criticized Carver.

Motion to strike out "savagely."

It is further incorrect, although there is room for difference of interpretation, in that Coues, a most eminent scientist and

scholar, made an exhaustive study of the Mississippi and St. Peter rivers in connection with this volume, and the
3955 expeditions of Zebulon M. Pike, and came to conclusions similar in spirit if not in detail to those that Featherstonehaugh came to.

Motion to strike out as to what his conclusions were. Coues' conclusions are embodied in a footnote I have read in connection with the Bourne article. That last conclusion was my own.

Motion to strike out.

It appears in this text; I have stated it partially on that, but more particularly on my study of Coues' work.

3955 Schoolcraft in his Thirty Years with the Indian Tribes as shown by Bourne and as read into the record, his criticized the second portion of Carver's work and advanced the theory as to its origin, which has nothing to do with the personal foresight of Carver. Schoolcraft testified to his own belief that Carver visited the portion of the country which he claims to have visited.

3956 Featherstonehaugh went over the ground of the Long and Carver expeditions, and checked up the two accounts of Carver and Keating, and decided in favor of Carver as being the more accurate.

Greenhow in his History of Oregon, cited by Bourne, and read into the record, criticizes Carver's accounts as to the second portion of the book, as divided by Bourne in this study, but does not criticize the first portion which has to do with Carver's travels. I have here Coues' book referred to by Bourne on page 300 of the study. The volume is en-
3957 titled "The Expedition of Zebulon Montgomery Pike, to Headwaters of the Mississippi River, through Louisiana Territory, and in New Spain, during the years 1805-6-7. A new edition now first reprinted in Full from the Original of 1810, etc., etc. In Three Volumes Volume I. New York: Francis P. Harper, 1895."

Coues is described in Appelton's Encyclopedia of American Biography as being a naturalist. Was born in 1842 in New Hampshire; received degrees of A. M., M. D., and Ph. D. from Columbian University of Washington. In 1869 became professor of Zoology at Norwich University of Vermont. Prior to this had a considerable career in the
3958 army. From 1873 to 1876 he was surgeon and naturalist to the United States Northern Boundary Commission. From 1876 to 1880 secretary and naturalist to the United

States Geological and Geographical Survey of the Territories. Has been editor and associate editor for years of the Bulletin of the United States Geological Survey of the American Naturalist, "Century Dictionary," and other publications, and the author of several hundred monographs.

Coues takes the Pike's Journal, prints it verbatim and accompanies it with a very exhaustive critical analysis. For instance, opening at random on page 164, I find two lines of the text and the rest of the page in very fine print devoted to Coues' notes. It is probably as exhaustive a study of such an expedition as any scholar has ever made.

3959 Coues is in my opinion abundantly qualified to speak on the relative merits of the accounts given by Carver, Keating and Featherstonehaugh.

I read from the text of Pike's Journal, Coues' volume 1, p. 59 (reading):

"Sept. 16th. Embarked late, as I wished Mr. Frazer to overtake me, but came on very well. His canoes overtook us at dinner, at the Grand Encampment (7½ miles) below Lake Pepin."

I read footnote 60 on p. 59, as follows (reading):

" 'Grand Encampment' is a phrase in use since Carver's Travels first appeared. Carver first came to Lake Pepin Nov. 1st, 1766. Those who wish to verify the fact will find it on p. 34 of the Phila. ed. of 1796, which is commoner and therefore more accessible than any of the earlier ones; the London princeps, 1778, is a rare book; the place is p. 54 of this ed. On p. 35, Carver says the place was 'some miles below Lake Pepin.' This left the location in the air, especially as he does not say which side of the river, and various authors have raised such a fog about it that we might be excused if we failed to find it anywhere. By Pike as above, the place is between Buffalo r. and Chippewa r.; he starts late, noons
3960 on the spot, and gets into Lake Pepin at Dusk. On his return voyage, Apr. 15th, 1806, he stops at the place; he makes it on the right (west) bank, 9 m. below Lake Pepin. When Long comes by, in 1823, his boat party camps opposite the mouth of Buffalo r., just as Pike did yesterday; on the 30th of June they find themselves 'a few miles' below L. Pepin, and much concerned to discover Carver's 'fortifications:' See Keating, I, pp 276-78.

3961 The upshot of their long discussion is the conclusion

that Carver did really see what he says he saw, but that the works he described were not at the Grand Encampment, where they found no fortifications. But this is clearly a non sequitur, or a lucus a non, or a petitio principii, or an argumentum ad hominem, or whatever, may be the logical definition of an illogical syllogism. It misses the point. The question is not one of identifying Carver's locality; the question is whether what he saw there was an artificial work or a natural formation. The place can be pointed out with the point of a pin stuck through the map, provided the topography has not changed too much for that during the century; for the point which now points to Carver's location is Point Teepeeota of the U. S. survey chart. The point above, at which Major Long's boat-party landed an hour or two later that day, and 'which appeared to correspond with the description' of the Carver's place, though their search here was likewise unsuccessful,' (p. 278), is the present site of Wabasha—the place where Nicholas Perrot is thought to have landed in 1683, and built a log fort, the first thing of the kind in all that country, afterwards marked on some maps as Fort Perrot. Teepeeota pt. is the projecting end of the long narrow sand-drift or sand terrace already mentioned as extend-
3962 ing 9m. or more in the delta of the Zumbro; it strikes the Mississippi immediately below the Middle mouth of the Zumbro, and in fact determines the position of that opening. Teepeeota pt. is 4½ m. direct above Alma, somewhat more than 5 m. by the channel. It is 3 m. direct below Wabasah a little more by the channel; it is 6 m. below the upper mouth of Chippewa r., say 7 by the channel. The Indian name would be more correctly rendered Tipiotah—tipi meaning a lodge or dwelling (such as is called 'wigwam' in novels, but seldom so on the spot—and the rest of the word denoting multitude; the papertown there, called Teepootah City, went up in smoke, 1859. The Island off Teepeeota pt., but a little lower down, is now called Grand Encampment isl. Of the accuracy of this identification I do not see how there can be any question, though time has modified the contour details in the course of nature, as well as in the course of the engineering work down there of late years. These fortifications of the river against its own sands are doubtless the only ones of any mag-

nitude that have ever been made on the spot, before or since Carver; though there was nothing to hinder the Sioux from scooping holes in the sand drift and scuttling into them when the Chippewas came in sight, as we know they did at Prairie la Prosse and elsewhere. Under these circumstances, I think the gentlemen of Major Long's party were as unjust to themselves in doubting their own identifications (in which they were supported by Hart, Rolette, and others who
3963 knew about the place), as they were to Carver in saying, p. 277: 'No gentleman of the party would be willing to ascribe to Carver a scrupulous adherence to truth, (personal observation having convinced them all of the many misrepresentations contained in his work.)' If this is meant to charge Carver with willful misrepresentations, I think it is unjust as well as ungenerous. Carver mistook a natural for an artificial work—so did William Clark, to the extent of drawing one to a scale and describing it in the terms of military science—so have done many professional archaeologists. Carver made mistakes, like the rest of us; he was often loose about instances, dimensions, and such things, he believed more things that were told him than a less honest and more wary wayfarer would have taken to be true; but I think he drew a short bow for so long a journey, had no occasion to deceive anyone but himself, and always intended to tell the truth as it seemed to him—in short, I do not see how his good faith can be seriously questioned. I accept Carver's statements, as I do those of Pike, Long, and other honest persons, for what they may prove to be worth."

3964 I call attention to footnote 30, in connection with the entry of April 12th in Pike's Journal, at page 198 (reading note):

"Pike twice passed directly by Dayton bluff, in which this cave was situated—once Sept. 21st, 1805, and again to-day: see back, note 72, p. 75, for the locality, and add: The cave which Carter discovered in 1766 is thus described by him, pp. 39, 40, ed. of 1796; about 30 (say 15) miles below the falls of St. Anthony, at which I arrived the 10th day after I left Lake Pepin, is a remarkable cave of an amazing depth. The Indians term is
3965 Wakon-teebe, that is, the Dwelling of the Great Spirit. The entrance into it is about 10 feet wide, the height of

it 5 feet. The arch within is near 15 feet high, and about 30 feet broad. The bottom of it consists of clear sand. About 20 feet from the entrance begins a lake, the water of which is transparent, and extends to an unsearchable distance; for the darkness of the cave prevents all attempts to acquire a knowledge of it. I threw a small pebble towards the interior parts of is (it), with my utmost strength; I could hear that it fell into the water, and notwithstanding it was of so small a size, it caused an astonishing and horrible noise, that reverberated through all those gloomy regions. I found in this cave many Indian hieroglyphics, which appeared very ancient, for time had nearly covered them with moss, so that it was with difficulty I could trace them. They were cut in a rude manner upon the inside of the walls, which were composed of a stone so extremely soft that it might easily be penetrated with a knife; a stone everywhere to be found near the Mississippi. The cave is only accessible by ascending a narrow, steep, passage, that lies near the brink of the river." Now, it is easy to criticize such an account, and those who wish to discredit this honest gentleman seize upon 'amazing depth,' 'unsearchable distance,' 'horrible noise,' etc. But that is unfair. The phrases are only Carver's façon de parler of his subjective sensations; the ob-
3966 jective reality is truthfully and recognizably described. Besides, one should be sure he is in Carver's cave before he criticizes the description—not get into another cave and then find fault with Carver because the wrong cave does not fit the right description, as our friend Schoolcraft did. The cave which Carver does not describe was not discovered until 1811. Long visited two in 1817; in 1823 Long's second party visited the New or Fountain cave, and Keating has left the matter in such clear light that the passage may be transcribed, I. p. 289 ed. of 1824: 'Above this village (of Kapoja), there is a cave which is much visited by the voyagers; we stopped to examine it, although it presents, in fact, but little to admire; it is formed in the sandstone, and is of course destitute of those beautiful appearances, which characterize the caverns in calcareous rock. It is the same which is described by Mr. Schoolcraft, whose name, as well as those of several of Governor Cass' party we found carved in the rock. In his ac-

count of it, Mr. Schoolcraft states it to be the cavern that was visited by Carver, but adds that 'it appears to have undergone a considerable alteration since that period.' It appears, from Major Long's MSS. of 1817, that there are two caves, both of which he visited; the lower one was Carver's; it was in 1817 very much reduced in size from the dimensions given by Carver, the opening into it was then so low, that the only way of
3967 entering it was by creeping in a prostrate position. Our interpreter, who had accompanied Major Long, told us that it was now closed up; it was probably near the cemetery which we have mentioned. The cavern which we visited, and which Mr. Schoolcraft describes, is situated five miles above; it was discovered in 1811, and is called the Fountain cave; there is a beautiful stream running through it,' etc. I think it is very likely the cave Long visited in 1817, and thought to be Carver's, was really the smaller one alongside Carver's in Dayton Bluff, of which I am informed by my friend, Mr. A. J. Hill, seeing how 'much reduced in size from the dimensions given by Carver' he found it. Beltrami, II, pp. 191-193, goes on about Carver's cave in a way which makes one think he entered no one of the three caves in this vicinity, but drew on his imagination for his description after reading up on the subject. He uses the phrase 'cave of Trophonius,' and says that 'the Sioux call this cave Whakoon-Thiiby'—a decidedly original way of spelling it. Featherstonehaugh describes his visit of Sept. 12th, 1835, to what he calls Carver's cave, p, 257 of his Canoe Voyage, etc., pub. 1847. Nicollet, who is always to the point, speaks of two caves, one 4 and the other 8 m. below St. Peters, Rep. 1843, p. 72: 'Both are in the sandstone, but at different elevations. The former is on a level with the river, and is reached
3968 through a short ravine along the limpid streamlet that issues from it. Many authors have thought this to be the cave described by Carver, but erroneously. It would, in fact, be only necessary to compare the locality with Carver's description, to be at once convinced. The cave now referred to is of recent formation. The aged Sioux say that it did not exist formerly. It has to them no ceremonial association. They scarcely ever visit it, and there are none of their hieroglyphics upon its sides or floor. It owes its formation to the dislocation and de-

composition of the upland limestone, which have left sloughy places; the waters of which have penetrated into the sandstone, wearing it away, and giving origin to the streamlet which issues from it. The location of this cave is on my map designated as the new case (New Cave.) The second, four miles below the former, is that scribed by Carver. Its entrance has been, for more than 30 years, closed by the disintegrated debris of the limestone capping the sandstone in which it is located. On the 3d day of July, 1837, with the assistance of Messrs. Campbell and Quinn—the former an interpreter for the Sioux, the latter for the Chippeways—I set about clearing this entrance; which, by-the-bye, was no easy work; for, on the 5th we were about abandoning the job, when, unexpectedly, we found that we
3969 had made an opening into it, and although we had not entirely disincumbered it of its rubbish, I saw enough to satisfy me of the accuracy of Carver's description. The lake mentioned by him is there; but I could only see a segment of the cave, a portion of its roof being too near the surface of the water to enable me to proceed any further. A Chippeway warrior made a long harrangue on the occasion; throwing his knife into the lake as an offering to Wakintibi, the spirit of the grottoes. The ascent to the cave is by a rapid slope; and on the rocks that form a wall to the left, there are a number of ancient Sioux Hieroglyphics, that mean nothing more than to indicate the names of Indians that have at various times visited this natural curiosity. On leaving the cave and reaching the river, a stroll of a few yards to the left, by keeping close to the rocks, brought us upon a sweet, limpid and copious spring which had remained for a long time unknown in consequences of the shingle and brush that conceal its outlet. This evidently the issue of the waters of Grotto lake; and their abundance indicates that the lake is well fed, and doubtless occupies a considerable space within the mountain. On the high grounds above the cave there are some Indian mounds, to which the Indians belonging to the tribe of Mdewakantonwans formerly transported the bones of
3970 the deceased members of their families,' as is stated by Carver, Pike, Long, and many others. I am led into this Long note partly for the purpose of setting history straight and partly from the intrinsic interest of

these Stygian caverns, which Pike passes today without notice, as hundreds now do every day and will do until the places are improved off the earth. The cave that Nicollet opened is the veritable one that Carver discovered; it is right on the railroad that skirts Dayton bluff, about a mile in an air-line from Union depot. The New or Fountain cave is miles away, in Upper St. Paul, near the railroad bridge there, unless it has lately yielded to the triumph of art over nature and been effaced. Mr. Hill writes from St. Paul, Mar. 18th, 1894: 'Before the shaving off of Carver's cave—or rather before our civil war—the serpent on the roof on the right hand as you stood on the brink of the waters was very plainly visible, and might have been traced by rubbing or otherwise; but this would have required scaffolding. It has been remarked that the serpent was the totem of Ottahtongoomlisheah, one of the Sioux chiefs of the 'Cave Treaty.' I found by actual measurement that the extreme length of the cave was 110 feet, before any alteration of the surface had occurred.' See also the article by Mr. Mill on Mounds, Minn. Hist. Soc. Coll., VI Pt.
3971 2, 1891, J. Fletcher Williams, in Minn. Soc. Coll. I, 2d ed. of 1872, p. 355, notes that there was little change in Carver's cave in the course of a century, for it was much the same May 1st, 1867, when the Historical Society celebrated the centennial of Carver's purported treaty with the Sioux. 'Within the past two years, however, sad changes have taken place. The St. Paul & Chicago Railroad, having condemned for their use the strip of land along the river bank, including the bluff or cliff in which is the cave, have dug it down and nearly destroyed it. But a narrow cavity now remains to mark its site. The pool or lake is gone, and the limpid stream that flows through it now supplies a railroad tank.' But now, says Mr. Hill, 'sand heaped from railroad cutting has again back up the water into a pool, the receptacle of all filth.' Mr. T. H. Lewis' article, Cave-Drawings, Appleton's Annual Cyclop., 1889, p. 117 (reprint p. 3), gives the exact position of both the Dayton and bluff caves; the small one, 400 feet above Carver's. is 50 feet N. E. of Comercial St., midway between Plum and Cherry Sts., at the foot of the bluff; 35 feet long on the floor, as measured in 1889 to the edge of the water in the rear, 24 feet wide. 10 feet high—thus about one-third as

large as Carver's. It has pictographs like those of Carver's cave. None of those Carver mentions were ever copied; his cave was in part demolished by grading when the railroad first came, by and in the course of time the walls were scribbled over by the ubiquitous army of idlers and tramps from whose vandalism no natural formation or artificial monument in the world is secure."

3972 I now call attention to the volume entitled, "Expeditions of Zebulon M. Pike," page 329 and following, the page being headed Giacomo Constantino Beltrami. Beltrami was a member of Long's expedition in 1823, was ambitious to achieve a name as an explorer; in the course of his expedition with Long, he quarreled with Long, was dismissed and launched upon an extended expedition of his own, and has left an account of the whole expedition both with Long and after he left him. Whatever Beltrami may say about the Long expedition must be considered in view of this situation. Coues gives a higher estimate of his work than some others have done. Just as he stands stoutly by Carver, so he does by Beltrami, though admitting in certain respects Beltrami's book is open to criticism. I read from a footnote on page 329 (reading):

3973 "As I have already cited, the military mailed hand, let us see the fine Italian hand: 'Major Long did not cut a very noble figure in the affair; I foresaw all the disgusts and vexations I should have to experience,' II, p. 305; 'met a band of Sioux. The major thought he read hostile intentions in their faces; he even thought they had threatened him;—of course everybody else thought so, too—like Casti's Courtiers. * * * It was incumbent upon me, therefore, to be very much alarmed, too. * * * I rather thing the fright they threw the major into was in revenge for his giving them nothing but boring speeches. If they meant it so they had every reason to be satisfied,' II, pp. 336-37. 'Colonel Snelling's son, who shewed the most friendly concern and apprehensions for me. He also left the major at the same time, not without violent altercation. * * * With considerable regret I parted from Dr. Say, one of the naturalists attached to the expedition, the only one who deserved the designation. (This was a tickler for Prof. Keating's fifth rib),' II, 370. 'They (Colonel

Snelling, Major Talliferro, and others) were indignant against Major Long for acting towards me in the miserable manner that he did. With respect to myself, I feel towards him a sort of gratitude for having by his disgusting manners only strengthened my determination to leave him.' II, 483. Beltrami was evidently
3974 able to keep his own scalp, and his book is vastly diverting, except in the boggy places, where he mires us down with his gynaecosophy. It is entitled: A Pilgrimage in Europe and America, Leading to the Discovery of the Sources of the Mississippi Rive[illegible] etc. 2 vols., 8vo, London, 1828, pp. i-LXXVI, 1-472, and 1-545, Map and Plate. It is dedicated: 'To the Fair Sex. Oh, Woman!' The text is in epistolary form, austensibly addressed to the Countess, and consists of 22 letters, 1821-3; matter of Julian sources, II, p. 409, *seq.*, and map."

I have made use of an index to this work to run down every reference to Keating and to Featherstonehaugh; found among others such criticisms and comments on Keating and on Carver as I have put into the record. I found only one adverse criticism of Featherstonehaugh that may be re-
3975 garded as serious, which I have referred to. Featherstonehaugh already makes it clear that in his opinion Keating made careless statements based on inadequate or at times long range observations. The general criticism Featherstonehaugh made on Keating's account on conditions along the Mississippi and St. Peter's river tallies very well with what one might gather from a study of Keating's book as to Keating's observations concerning the Chicago-Desplaines route. At the Chicago-Desplaines portage, Keating, although there in the springtime and forced to abandon his boat in Mud Lake, does not hesitate to adopt the report of others to the effect that this route was a very eligible one in springtime. He went further than to the Desplaines, and without further personal examination formed his conclusion as to the navigability at a different season of the year, and as to the ease of canal communication between the two rivers.

3976 Wau Bun or The Early Day in the Northwest, first appeared in 1856, enjoyed great popularity, has been principally used by historians, especially so far as it deals with the Chicago massacre of 1812. Moses in his Illinois Historical and Statistical, one of the standard histories of Illinois, published first in 1889, states that historians without

exception rely upon Wau-Bun for their account of the Chicago massacre. Moses, with some slight criticism relies upon it in that connection. Thwaites who edited the 1901 edition of Wau-Bun has said in his introduction, XIII (reading):

3977 "The early history of Chicago has much to do with the Kinzies and their connections. It is particularly fortunate that one of this family should have given to the world, out of the abundance of her recollections of the 'early day' what has become a classic in the historical literature of the Middle West—the Northwest of a half century ago."

Then follows a bibliographical account of the Kinzie family which was apparently drawn almost exclusively from this volume, which indicates that Thwaites evidently had confidence in it by having relied upon it for the facts used in his introduction (reading):

"XVIII. The footnote to the opening page of chapter XVII of Wau-Bun (page 155 of our text) says that her story of the massacre was first published in 1836; but apparently no copies of this early publication are now extant. Mrs. Kinzie's narrative was of course obtained from first hands, her husband and other members of her family having been witnesses of the tragedy; it has been accepted by the historians of Illinois as substantially accurate, and other existing accounts are gen-

3978 erally based upon this. With slight variation, the contents of the pamphlet were transferred to the pages of Wau Bun, of which they constitute Chapters XVIII, XIX, and XX. * * * It has been accepted by the historians of Illinois as substantially accurate, and other existing accounts are generally based upon this. * * *

XIX Wau-Bun gives us our first, and in some respects our best, insight into the 'early day' of the old Northwest."

I now read from the footnote on that page (reading):

"Similar reminiscences, almost as excellent in their way, but more limited in scope, are: Mrs. Charlotte Ouisconsin Van Cleve's Three Score Years and Ten (Minneapolis, 1888), and Elizabeth Therese Baird's articles in vol. XIV and XV, Wisconsin Historical Collections."

Elizabeth Therese Baird is the woman from one of whose articles I have heretofore read, and this reference is in part

of that article. Continuing to read from Dr. Thwaites introduction, read (reading):

3979 "The graphic illustrations of early scenes which the author has drawn for us are excellent of their kind, indicating an artistic capacity certainly unusual upon the American frontier of seventy years ago. But better than these is the text itself. The action is sufficiently rapid, the description is direct, and the style is unadorned but makes the story appear to us the more vivid. Upon her pages we seem to see and feel the life at the frontier military stockades, to understand intimately the social and economic relations between the savages and the government officials set over them, to get at the heart of things within the border country of her day. It is the relation of a cultivated eye witness, a woman of the world, who appreciates that what she depicts is but a passing phase of history, and deserves preservation for the enlightenment of posterity. Many others have, with more or less success, written narratives within the same field; Mrs. Kinzie herself occasionally trips upon dates and facts, and sometimes she deliberately glosses where the antiquarian would demand recital of naked circumstances; but take Wau-Bun by large and small, and it may safely be said that to students of the history of the Middle West, particularly of Illinois and
3980 Wisconsin, Mrs. Kinzie has rendered a service of growing value, and of its kind practically unique.

It is fitting that the Caxton Club should publish a new edition of this early Chicago classic, with the needed accessories of notes, index and additional illustrations. The book deserves to be better known of the present generation, who will find in it a charming if not fascinating narrative, giving them an abiding sense of the wonderful transformation which seventy years have wrought in the development of the Old Northwest."

What Dr. Thwaites presents here agrees closely and with entire accuracy with the general estimates historians have put upon this work down to the present day. What he says about the volume is justified to a certain extent in my opinion, so far as the greater part of the volume is concerned, as it deals with conditions contemporary to Mrs. Kinzie. What Dr.
3981 Thwaites says about the part which deals with the Chicago massacre is not justified, in my opinion, for that

event occurred in 1812 when Mrs. Kinzie was but a child living in New England. She depended upon other sources for information she gives us concerning it. Viewed as a solid historical work to be taken up, used and examined in the critical fashion as by Dr. Coues or a trained historian, I don't think it justifies the high estimate that is generally put upon it. Mrs. Kinzie was not a trained historian, did not weigh her words carefully; if she did, she strove for literary effect. I cited Wau-Bun not because I hold it valid in
3982 every statement or detail, but rather because of the estimate of the work by such men as Dr. Thwaites, to whose opinions the government attaches great importance. I stand practically alone in my lower estimate of the work. While Mrs. Kinzie may be wrong, and doubtless frequently is in error on question of detail, she is not so likely to err about matters describing general conditions. For example, Dr. Thwaites is well qualified to speak upon the manner of life of the French voyagers. Mrs. Kinzie has given specific and interesting description of this thing. Thwaites having read it over, has taken no exception to her descriptions. For example, he says in his introduction (reading):

> "XIX. Wau-Bun gives us our first, and some respects our best, insight into the 'Early Day' of the old Northwest. The graphic illustrations of early scenes which the author has drawn for us are excellent of their kind."

3983 My references from this book have been with reference to conditions contemporary to the author, Mrs. Kinzie; to general conditions, concerning which it seems to me one may reasonably attach greater weight to her statements than he might to a matter of specific detail.

I have examined and made an analysis of those portions of the book entitled Incidents and Events in the Life of Gurdon Saltonstall Hubbard, referred to by complainant's witness Alvord, at transcript, pages 263-270 (Abst., 118-122), and the paper of Gurdon S. Hubbard in 1818, read before the State Pioneer Society, appearing on transcript, pages 270, 272 (Abst., 122-123). Hubbard first came to Chi-
3984 cago, September 30th, 1818, stopped a few days, then went with the fur brigade down the Desplaines river to the Illinois, an account of which passage down the river is found in Hubbard, beginning on page 39. On page 41 it appears the voyage down the Desplaines was resumed to Isle la Cache where low water again compelled them to unload their

goods to pass over the shoal that presented itself there. Here they camped again after a hard day's labor.

Motion to strike out on the ground that the witness is paraphrasing language of authorities.

COUNSEL FOR DEFENDANT. If the objection is sustained, will move to strike out all conclusions and general statements as to contents of books and narratives given by complainant's witnesses.

3985 On page 43 of the same account of the same journey, having given an account of the passage over the shoals referred to on page 41, he says the progress was very slow, that most of the distance to the Illinois their goods were carried on their backs, lightened boats were pulled over shallow places, often on poles and dragged over the rocks and shoals. Three weeks occupied in reaching mouth of Fox river. Two days more to bring them to Starved Rock. As to the account by Hubbard on page 41, how Isle la Cache gained its name, we observe that it is not accurate.

3986 Mr. Sara being the man, I presume, who was identified by Alvord in this case, Isle la Cache could not possibly have gotten its name from any such circumstances as Hubbard describes. I say that because the name Isle la Cache appears as early as 1699 in the sources; Sara came, according to Alvord's testimony about the Cahokia and the Kaskaskia records, to the Illinois country between 1750 and 1760. Sara was one of the prominent characters in lower Illinois, whom George Roger Clark had to deal with at the time of the Revolution. Obviously Isle la Cache could not have been named after him, as the name was used as early as 1699.

Objection and motion to strike out; witness paraphrasing authorities. (Understood between counsel that motion need not be renewed where applicable.)

3987 I now turn to pages 59 and 60 of Hamilton's Hubbard, appearing on transcript, page 269. Hubbard's account of the first return from the lower Illinois country to Chicago. They spent the winter on the Illinois (p. 59), and on March 20th, began to return with the winter's load on the journey to Mackinac. He points out that there was

3988 high water in the Illinois, the current was swift, and the rapid strong. They made from Starved Rock to Cache Island only from six to ten miles per day, being glad to camp early and give the men needed rest. From Cache Island they hoisted their sails, the wind being strong from the southwest, passed rapidly up the Desplaines through Mud Lake to the

south branch regardless of course of channel. It is evident that the water was so high that this indicates nothing as to the normal state of the Desplaines. Hubbard already had said that only in very wet weather, was there water enough to float a boat through Mud Lake and the portage. Page 104 (reading):

"I expressed my desire to again go out with the Illinois 'brigade,' giving my reasons therefor; and these, aided by Mr. Deschamps' solicitations (he claiming that
3989 he had only consented to part with me for a year, expecting me to return and take charge of the boats on the Illinois river), induced Mr. Crooks—though reluctantly—to give his consent to my going out with my old friend and comrade. In due course of time our 'brigade' started, the twelve boats led by Mr. Deschamps and the old familiar boat song. I was again with my old companions, all of whom gave me a cordial welcome. Day after day we pursued our voyage, the ever monotonous row, row, being varied by no incidents of interest, until we reached Chicago. We had made an unusually quick trip, having been delayed by adverse winds but two or three days on the entire journey. Again I was rejoiced with a home in Mr. Kinzie's family, and remained there for several days until the 'brigade' again moved for the Illinois river."

I now call attention to the passages immediately following as found at transcript, page 506 (Abst., 221). Here we have the account of the second season spent in the Illinois country.

Pages 104-105 give us the description of the passage of
3990 the Chicago portage to the Desplaines river. Water unusually low; Desplaines could be crossed in places without wetting soles of the feet. Had to carry all goods from Chicago river to Desplaines on their backs, encountering the usual fatigues in descending the river. "The usual fatigues" was explained on account of the passage down the river the first time in the preceding year. Hubbard indicates that the water was even lower than in 1818, and it is reasonable to infer that the fatigues were even greater than in the preceding year. Then occurs (p. 116, Hamilton's Hubbard), the account of the second return from the lower Illinois to Chicago (reading):

"About the 1st of April we resumed our journey toward Mackinaw"—the point in view being the brigade at Beason's Post on the Illinois river—"Proceeding

leisurely, and reaching Chicago in due season, where, as usual, I found a warm welcome from the Kinzie family and officers of the fort. A week or ten days was thus joyfully spent, and I deeply regretted the day of our departure."

No details are furnished of the second passage up the
3991 Desplaines. Turning to the account of Hubbard's third season on the Illinois, I read from his life, page 121 (reading):

"This incident served for a standing joke, and many times was the laughter renewed when the ludicrous affair was again presented to our minds. Although we had enjoyed ourselves so much at his expense, we learned to like him for his many good qualities, and when we parted with him at Peoria, it was with many and sincere regrets."

Thus it appears he is about to describe the journey up the Illinois river from Peoria and onward. I read again (reading):

"Our trip was a tedious one, we being kept many days in camp by heavy adverse winds. We were nearly a month in reaching Chicago, where, as usual, I was welcomed by my friends, the Kinzies, who, with Dr. Wolcott, rendered me many kind services.

3992 At Chicago I found Pierre Chouteau, Jr., of St. Louis, whose acquaintance I had formed several years before, and who now proposed that I should enter their employ at the expiration of my engagement with the American Fur Company; during my two weeks' stay we became very intimate. The officers of the fort were good companions, and I passed much of my time with them, and very pleasantly, and much regretted the time of parting.

We encountered the usual trials and hardships between Chicago and Starved Rock, and in due season arrived at Bureau Post, where I had passed my first winter, and Mr. Beebeau having died since our departure the previous spring, I was placed in charge."

From this it appears there were no details of the trip up the river from Peoria to Chicago. In a general account it appears they were nearly a month passing over the distance and the trip was a tedious one. As to the next trip down the river from the citation just read, they encountered the usual trials and hardships between Chicago and Starved Rock. No

further details are given. I now turn to Hubbard's Life,
3993 page 124, cited at transcript, page 957 (Abst., 400); an account of the return from the lower Illinois to Chicago in the spring of 1822. It states they had accumulated more furs and peltries than their boats could carry up the Desplaines, so he was dispatched with four boat loads to Chicago, which were stored with John Crafts, and returned to the brigade when they all moved forward on their annual return to Mackinaw. On page 129, Hamilton's Hubbard, appearing at transcript, page 509 (Abst., 222) it appears that the following year Hubbard was stationed on the Iroquois river, and decided on his return from Mackinaw to pass his boat over the St. Joseph-Kankakee route to save the remainder of the trip by Chicago and the delays and hardships of the old route
3994 through Mud Lake and the Desplaines. Passing to page 136, the chapter beginning "1824.—Placed in Charge of the Illinois River trading posts," which has been read into the record; this shows that in 1824, Hubbard is put in charge of the Illinois river trade of the American Fur Company. He gave up the use of the Desplaines river, and determined to scuttle his boat in the slough at Chicago and transport the goods to the Illinois country and the furs back from there by means of horses; the reason for it being this: To avoid the long, tedious and difficult passage through Mud Lake and down the Desplaines.

The life of Hubbard, pages 150-151, is an account of the trip of General Cass by way of the Fox and Wisconsin rivers and the Mississippi to St. Louis, up the Illinois and Desplaines to Chicago at the time of the Winnebago war. Here is given an account of Cass' trip in 1827 from Green Bay by way of Prairie du Chien and St. Louis, thence up the Illinois and Desplaines to Chicago, which required thirteen days to consummate.

3996 Have examined extracts from Hubbard as to the Desplaines given on behalf of the United States, and the testimony of McLaughlin in that particular, transcript, pages 770 and 771 (Abst., 321). McLaughlin concludes that we have here distinctly a primary source, an account by a person who actually used the river, and therefore would actually receive great weight. He would accept it at its face value as showing that Hubbard made the trip down the Desplaines though with some difficulty; that on his return, he passed up the Desplaines through Mud Lake into the south branch of Chicago and on

to Chicago without portage. Relative to Hubbard's change of plan, using horses instead of boats below Chicago, McLaughlin concludes that this shows that the ordinary method of passage, though long and tedious, was through Mud Lake and down the Desplaines, and that the important point in this connection is the reasonable conclusion that the passage by Mud Lake and into and down the Desplaines river was an ordinary well known passage and had been used and was in use at that time.

I observe with reference to this conclusion that this passage shows the Desplaines was navigable to about the same extent and in practically the same way that it shows that Mud Lake and the portage from Mud Lake to the Desplaines were navigable. The two portions of the route stand on practically the same basis. Granting for the moment, that McLaughlin's conclusions are valid ones as he has stated them, they show nothing as to the navigability of the Desplaines which does not apply to the navigability of Mud Lake and the portage between Mud Lake and the Desplaines.

Motion to strike out with reference to navigability.

3998 With reference to Thwaites' conclusions on Hubbard and use of Desplaines river as shown by Hubbard (Trans. p. 960, Abst., 402) he stated among other things:

> "That in places they found sufficient water to float the loaded boats, but in some other places they were obliged, from insufficiency of water, to unload the boats. Now I do not find in this detailed account by Mr. Hubbard, any evidence that the fur traders were obliged to take the boats from the water in these passages, but they were at times forced to use poles to get them over the rocks and shallows."

To my mind in that connection, there is no material distinction between taking the boats from the water and putting the boats on rollers, because there was no water from which to take them. Hubbard points out in the detailed account given of the first passage down the Desplaines, page 43 (reading):

> "Our progress from this point was very slow indeed, and most of the distance to the Illinois river our goods were carried on our backs, while our lightened
3999 boats were pulled over the shallow places, often being compelled to place poles under them, and on these drag them over the rocks and shoals."

Evidently they had reached a place or places in the river, for he says they were often compelled to do this where there was no water, which is to all practical intents and purposes, from which to take the boats.

4000 Further from Dr. Thwaites' conclusion, transcript, page 961 (Abst., 403):

"In the spring time these same boats, heavily laden with furs, returned to Lake Michigan, by the Desplaines and the Chicago rivers without difficulty."

That conclusion is inaccurate, it seems to me; Hubbard's account shows there was difficulty in returning up the river with these loaded boats in the spring. My conclusions from Hubbard's narratives are that it shows for about six years, from 1818 to 1824, the Desplaines river route was used by the American Fur Company traders, ordinarily twice yearly, that is, in the spring and in the fall. There was one year when Hubbard returned by way of the St. Joseph-Kankakee route. My impression is that other traders who were not stationed on the Iroquois went down by the usual route. I recall

4001 no specific statement to that effect. That each fall they passed down the river with loads of goods for winter trading, but so far as the Desplaines is concerned, the passage was made with great difficulty, the goods being carried on the men's backs, and the boats transported on rollers or poles much of the way. The route was so difficult that Hubbard on getting control, immediately abandoned it for the use of horses, a plan which he had long intended. Each spring boats came up the river in time of high water and passed with toil and difficulty into the Chicago. That this was in time of high water is shown in part by the specific accounts of passages in Hubbard's statement, page 39 of the Life, that only in wet seasons would Mud Lake float a boat, yet we find from these accounts of the return of the fur brigade during these years that not only Mud Lake but the portage as well could be sailed over regardless of the course of the river channel. So I conclude that at such a time the prairie generally was inundated.

Referring to Thwaites' conclusions as to Cass ap-

4002 pearing on transcript, page 962 (Abst., 403), "This exhibits the fact that the Chicago-Desplaines route was well known at the time, and Cass, as a government official, used it as a desirable one to pass from the Mississippi to the Great Lakes." I have studied Cass' trip in connection with Hubbard's reference to it.

I would observe with reference to this conclusion of
4003 Thwaites that Hubbard's narrative in itself does not supply sufficient data for forming a conclusion as to why Cass chose this route. Reference to other well known sources makes it clear that Cass ran great risk in passing through the hostile Winnebagoes on his way down to St. Louis; that he could not expect to return the same way with the war now fully on, and therefore to get back to Green Bay at all, he must come by way of the Illinois, therefore, Thwaites' conclusion that he used this route as a desirable one is unwarranted. Even though it be conceded that it was practicable for Cass to have returned to Green Bay by way of the Fox-Wisconsin route, he may well have come the Chicago way to warn the settlers at Chicago of their danger from the Indians, this being in part the purpose of the expedition in which he was engaged.

4004 My authorities for that statement are Schoolcraft's Thirty Years with the Indian Tribes, pages 266-267; Smith's Life and Times of Lewis Cass, pages 187-190.

COUNSEL FOR GOVERNMENT. I will ask counsel in view of his statement that in case the objection which I have been making should be sustained, he will move to strike out all answers by government witnesses in which they stated in their own way what was said in authorities on which they relied—I will ask counsel to point out before the close of his evidence just what statements of government witnesses he objects to on the ground raised by my objection; and I call attention to the fact that my objection is not to the right of the witness to explain passages by the use of extraneous matter or to give his interpretation of passages in the light of extraneous matter, but is solely to the statement by the witnesses as to what the passages are, over the objection of the government.

4005 I call attention further to the fact that the government's objection was made on this point only after counsel had stated in effect or at least refused to state that he would not rely upon the witnesses' statement of what the passages said, even though the statement itself was put in evidence.

The WITNESS (continuing): The reference to Schoolcraft, page 266, is an entry under the heading, "8th of June, 1827." That which precedes what I read gives an account of Schoolcraft's embarking for Green Bay to attend the treaty of Butte des Morts in June; the incidents of the trip, news of the out-

break of the Winnebagoes farther to the west and southwest (reading):

"The replies of the leading chief, Four Legs, were evasive and contradictory; in the meantime, reports from the Wisconsin and the Mississippi rivers denoted this tribe ripe for a blow. They had fired into a boat descending the Mississippi, at Prairie du Chien and committed other outrages. General Cass was not slow to perceive or pro-
4006 vide the only remedy for this state of things, and, leaving the camp under the charge of Colonel McKenney and the agents, he took a strongly manned light canoe, and passed over to the Mississippi, and, pushing night and day reached St. Louis, and ordered up troops from Jefferson Barracks, for the protection of the settlement. In this trip, he passed through the center of the tribe, and incurred some extraordinary risks. He then returned up the Illinois, and through Lake Michigan, and reached the Butte des Morts, in an incredibly short space of time. Within a few days, the Mississippi settlements were covered; the Winnebagoes were overawed; and the business of the treaty was resumed, and successfully concluded on the 11th of August."

4007 I read from Smith's Life and Times of Lewis Cass, page 185 (reading):

"The council was opened, and while holding it with the Indians at that place, a runner came in with the startling intelligence, that the Winnebagoes, who were expected, instead of attending, had broken out into hostilities, and had actually attacked the settlements. At that time, the communication between Green Bay and Prairie du Chien, upon the Mississippi river, where these events were passing, was by water up the Fox river about two hundred miles to the portage, thence across to the Wisconsin and down that stream to the Mississippi, which it enters three or four miles below Prairie du Chien. General Cass embarked in a birch canoe with fifteen paddles to visit the scene of difficulty, and to take such measures for the protection of the people and for restraining the Indians as might be found necessary. He ascended the Fox river, crossed the portage, and descended the Wisconsin about ninety miles; there he met a boat coming up, belonging to the American Fur Company, with some of their traders on board, from

whom he first learned the true state of things, which was more alarming than he had anticipated. The Winnebagoes had struck at some of the settlements about the Prairie, and fire and blood had, as usual, marked their
4008 course. They were at open war, and preparing to attack the frontiers, where the alarm was naturally very great. Some of these traders were intelligent men, well acquainted with the Indians, and enjoying their confidence, which was proved by the fact that they were permitted to proceed with their party upon their voyage without molestation, for the Indians feel much kindness towards the traders who treat them well. They urged General Cass not to proceed farther, but to turn back, as he had no force, and his position would be a very dangerous one. They said the Winnebagoes told them they should shut up the portage path, and that no other boat after theirs should pass. However, General Cass felt that he could not yield to these representations, though he felt their weight, but he felt also the necessity of continuing his mission at all hazards, as the consequences were all important to that district of country. The traders told him that the hostile Winnebagoes were encamped upon a high prairie some thirty miles lower down. Approaching the place indicated, the Indians were seen from the canoe to be in an evident state of agitation, moving rapidly about and watching the descending party. The flag of the United States was flying from the canoe, and though the Indians did not know who was in it, they saw at once that the movement was an uncommon one,
4009 and that probably some public officer was on board. General Cass directed the boat to approach the shore as near as possible, and then debarking with his interpreter and secretary, he ordered the crew to paddle out into the middle of the stream, and there to await the result. He then ascended the high bank where the Indians were assembled and the first thing which struck him was the sight of the squaws and children who were running away across the prairie. It is always a bad sign with the Indians when their women and children flee from the meetings which they hold with the white man.

On approaching the Indians, they received General Cass coldly, but without any direct demonstration of hostility. Some of the chiefs had been in council with him

and knew him, and all of them soon learned that he was their American father, charged, under their great father the President, with all the business between them and their white brethren. A conversation took place, and after awhile the pipe, that indispensable instrument of consultation, went around, and they seemed to be a good deal mollified. General Cass remonstrated with the chiefs in a firm tone against their dangerous proceeding, and stated their inevitable destruction, should they continue in their course. He invited them to come to Green Bay, where a council was then sitting, and if they had any just causes of complaint, he requested them to make
4010 them known to the commissioners, and assured them that justice should be done to them. An hour or two was spent in this intercourse, and the elder chiefs evidently became impressed with the conviction that they had placed themselves in a dangerous position, and they promised to do all they could to restrain their young men, and also that they would attend the council at Green Bay. The interview seemed to pass off well, and the conduct of the Indians, so far as came within the observation of General Cass, was respectful. The young men surrounded the chiefs, listening attentively in the usual Indian manner, but without saying a word. They always evince on these occasions great deference, the effect of which is, however, destroyed by the first impulsive movement. When General Cass had taken leave of the chiefs, and turned away from them, a young man suddenly leveled his gun at him and pulled the trigger, but luckily it missed fire. He was immediately seized by the chiefs, and his gun taken from him. It was obvious that the chiefs were afraid to commit an act so flagrantly hostile as would have been the murder of the representative of the United States in one of their councils, and therefore instantly arrested the act of the young man. The party re-embarked in their canoe, and continued their voyage to Prairie du Chien, which they reached
4011 without further accident, though several parties of hostile Winnebagoes were roaming about. At the Prairie General Cass found the inhabitants in the highest state of alarm, having resorted to the old unoccupied fort. He took such measures as were in his power to provide for the immediate danger and to organize the people for their defense, and he promised them to repair with all

speed to St. Louis, and there to place himself in communication with the Superintendent of Indian Affairs and with the general commanding the troops of the United States, and to have a force sent up without delay for their relief. At Fever River, now Galena, the miners had been driven in and the settlements broken up. Boats upon the Mississippi had been attacked, and the danger was rapidly spreading. General Cass stopped at Fever river, where the inhabitants were assembled. He gave them his advice, and explained to them his mission. At that time, on the right bank of the Mississippi, down to the Missouri line, there were no settlers, and but few on the left bank. On a recent excursion to Rock Island and Burlington, on the opening of a railroad, General Cass adverted to the wonderful difference he found in the condition of the country after an interval of twenty-eight years,—a change which resembles rather the dreams of an Eastern imagination than the sober realities of actual life. Arrived at St. Louis, the necessary arrangements
4012 were immediately made for the protection of the frontier, and a force was dispatched which reduced the Winnebagoes to obedience. From St. Louis General Cass ascended the Illinois in his canoe and passed into Lake Michigan, by the water communication, without leaving it.

At the head of the Desplaines, a branch of the Illinois which approaches near Chicago, is a shallow lake, appropriately named Mud Lake. The party entered it towards evening, and it soon became so dark that they could not discern the bank. The lake was covered with the broad leaves of a kind of lily, favorite haunts of disgusting looking water snakes." * * *

Omitting the portion which has been read in connection with Lee's testimony. (Reading, p. 189):

"In the almost fabulous progress of our country, there are few greater marvels than the change which a few years has wrought by the building up of the great city which now occupies that spot, then so lonely and exposed. It is difficult to conceive that but the other day, as it were, silence and solitude spread over all those
4013 regions, interrupted only by the Indian, or by the wild animals, his cotenants of the forest, whom God has given to him for his support.

From Chicago to the point of departure at Green

Bay, the voyage was upon Lake Michigan, and was happily terminated after a rapid passage.

General Cass made the trip from Prairie du Chien to St. Louis in six days, notwithstanding the stoppage at Fever river—the shortest time then known.

Great anxiety was felt at Green Bay, in the meantime, for the General's safety, rumors having reached there that he had been massacred by the Indians, on his way down the Wisconsin river. As soon as the troops left St. Louis, he set out on his return to Green Bay, by the way of the Illinois river and Lake Michigan, in the same canoe, and reached the treaty ground in safety, having traveled a circuit of about eighteen hundred miles, with unprecedented rapidity. His celerity of movement, and the alacrity with which the United States troops responded to his call, probably averted a war that might have embraced the whole northwestern frontier. He met now, at the treaty ground a large body of Indians, reputed to number three thousand. These he addressed, advising them to preserve the peace, but taking good care to let them know that, if they wanted war, they would find their great father prepared for them.

4014 General Cass having, in some degree, allayed the excitement and, by bold measures, awed them into apparent friendship, proceeded with the council, and the commissioners concluded a treaty on the fifteenth of September, at the Butte de Morts—Hillock of the Dead."

The WITNESS (continuing): As to Hubbard's account of Cass during the Winnebago war, he says, pages 150-151, Life of Hubbard, Cass was at Green Bay, heard news of trouble with Indians, got into a light canoe with twelve men at the paddles and a steersman, went by way of Fox and Wisconsin rivers to St. Louis, thence by steamer to mouth of Illinois, and thence in a canoe up the Illinois to Chicago. This trip from Green Bay was done in about thirteen days, the governor's party only sleeping five to seven hours, averaging 60 to 70 miles a day. He says they passed the Winnebago encampments without molestation, as they did not stop to
4015 parley but passed rapidly by and were out of danger before the Indians recovered from surprise. As to the time of this trip, Hubbard states the Pottawattomies' annual payment was in September, 1828. On page 149 he states that the night following the payment there was a dance in the sol-

diers' barracks. A storm arose about midnight and the quarters were struck by lightning and were consumed. Six or eight days thereafter Cass reached Chicago. According to Hubbard, therefore, Cass reached Chicago sometime in September or the early part of October. As to these statements of Hubbard, on pages 150-151, and further references just given in connection with Hubbard's Life, Young in his Life of Cass, page 96, says Cass is said to have made the trip from Prairie du Chien to St. Louis in seven days, the shortest time
4016 then known. The book is entitled "Sketch of The Life and Public Services of General Lewis Cass," etc., by William T. Young, published by E. H. Butler & Co., 1853. Page 96. (Reading):

> "In the course of two months, occupied on business relating to this movement of the Indians, Gov. Cass travelled three thousand five hundred miles. He is said to have made the trip from Prairie du Chien to St. Louis in seven days, the shortest time then known."

Schoolcraft, in his Thirty Years Among the Indian Tribes, pages 266 to 267, writing under date of June 8, 1827, which passage is in the record, says the council was held at Butte des Morts; that there Cass learned of hostilities and made his start. That he took a strongly manned light canoe, and pushing night and day, reached St. Louis. On the trip he passed through the Winnebagoes, and incurred extreme risks. That he returned up the Illinois and through Lake Michigan and reached Butte des Morts in an incredibly short space of time, and business of treaty was resumed and concluded August 11th. Smith's Life of Cass,
4017 pages 185-190, which have been read into the record, gives further details as to this trip of Cass. There are minor inaccuracies in the book. Do not assume responsibility for all statements made in this section cited as corroborative to and giving further corroborative details as to the facts concerning Cass' trip. At page 186 as read into the record, Smith describes the danger Cass incurred in passing through the Winnebagoes. That he stopped and parleyed with them, that a young Indian undertook to shoot him during the parley. On page 188 is a description of the passage through Mud Lake. States they made trip up the Illinois to Chicago without leaving canoe. Spent the night in their canoe in Mud Lake in intense rain. Pages 189-190 state they made trip from Prairie du Chien to St. Louis in six days, notwithstanding the delay at Fever river.

4018 I now call attention to 5 Wisconsin Historical Collections, the particular volume edited by Lyman Draper; the article occurred on pages 156-7, headed "Gen. Cass on the Winnebago Outbreak, 1827," which gives an account of the speech delivered by Cass at Burlington, Iowa, June. 1855, in which he described this affair. He states he ascended the Illinois in his canoe and passed into Lake Michigan without getting out. Water filled the swamps at the head of Chicago river, enabling the voyagers to navigate through without serious difficulty. The article is printed under the editorial direction of Lyman Draper. The distances passed by Cass in this journey were from Green Bay to Prairie du Chien, 285 miles; from Prairie du Chien to St. Louis, by the Mississippi river, is 542 miles; from St. Louis to La Salle, by Illinois river, 303 miles; from La Salle to Chicago is approximately 100 miles; total distance traveled, approximately 1230
4019 miles. Hubbard puts date of trip in September or early October. Schoolcraft, in Thirty Years Among the Indian Tribes, shows that Cass was back at Butte des Morts, had concluded the war and had signed the treaty by August 11th. I now refer to Wisconsin Historical Collections, Vol. 2, pages 329-330, article headed, "Pioneer Life in Wisconsin. By Col. Daniel M. Parkison, of LaFayette County, Wisconsin," with editorial comment by Lyman C. Draper.

4020 Objection to introduction of passage unless further qualification by stating who Parkison was.

The WITNESS (continuing): Parkison states in this article that Cass on this expedition reached Galena on July 6th. In this same volume, Appendix No. 6, page 98, I refer to the article "Early Times and Events in Wisconsin, by Hon. James H. Lockwood, of Prairie du Chien," edited by Lyman Draper. This states (p. 166) with reference to this same trip of General Cass, that he reached Prairie du Chien on the morning of July 4th. The article states that the distance from Prairie du Chien to Galena is 90 miles on the Mississippi river.

4021 Further as to Hubbard, he states that on the Wisconsin river Cass passed the Winnebago camps without molestation. That they did not stop to parley, passing rapidly by, singing their boat songs. Indians were taken by surprise, and before they recovered, the canoe was out of danger. Cass himself, 5 Wisconsin Historical Collections, 156-157, says he stopped at the Winnebago camp; talked with the Indians and smoked the Calumet. Afterwards learned that one of them tried to shoot him, but was prevented by the others. I con-

clude with reference to the whole account Hubbard gives of Cass' Expedition in connection with authorities I have cited, and my general knowledge on the subject, that this account being in the nature of reminiscences, written about a half century after the events described, this particular narrative abounds in errors and incorrect assertions. He states
4022 the time as 1828. It being in fact, 1827. He puts the season as September or early October. It was in fact the month of July, Cass being at Prairie du Chien on July 4th, at Galena on July 6th, according to the extracts cited; the distance between Prairie du Chien and Galena is 90 miles, and we know he stopped at Galena for a day or a part thereof. These accounts, therefore, independent of each other, corroborate one the other as fully as one could expect or desire. As to the conclusion of his journey when he reached Chicago, I estimate he was there approximately from the 18th to the 20th of July; at Prairie du Chien on the 4th; Galena on the 6th, and it required some six or seven days to go down the river to St. Louis. Hubbard says Cass made the
4023 trip from Green Bay to Chicago in about 13 days, averaging 60 to 70 miles a day, sleeping 5 to 7 hours per night. Schoolcraft, who wrote at the time, not a half century later, states they pushed forward night and day. The distance on this route from Green Bay to Chicago was approximately 1230 miles. Of this distance 560 up stream, and 660 miles down stream. It took 7 days, according to one account, six days according to another, to go from Prairie du Chien to St. Louis down the Mississippi, the best part by far of the journey, leaving according to Hubbard, 6 or 7 days to make 690 miles, of which 570 were up the Fox and Illinois-Desplaines rivers. As to Hubbard's statements they aver-
4024 aged 60 or 70 miles a day, if they made the trip in 13 days, and the distance is 1230 miles, they averaged 95 miles a day approximately, or else the other conclusion is inevitable,—they did not make it in 13 days. If they averaged 95 miles a day for the whole trip, upstream and down, it is improbable that they took seven days or six days, to make the 542 miles down the Mississippi. This would be, to use the number six, the more favorable number, so far as the validity of Hubbard's narrative is concerned, an average of ninety miles a day, and according to Hubbard it must have been an average of something like 95 miles a day upstream and downstream alike, on the Fox-Wisconsin, the Illinois, the Desplaines and the

Mississippi. Hubbard states Cass remained at Chicago but a few hours. Either then these things which are contained in Hubbard's account of Cass' expedition were all related at this time in the course of a few hours and Hubbard treasured them in his memory for upwards of half a century, or else Hubbard's information was gained from other sources. I think it reasonably evident that if the latter is the conclusion that must be accepted, that the modern historian is more
4025 competent to describe and state the facts concerning his expedition than Hubbard himself was. I conclude that this trip was not made in 13 days, that Hubbard's account is untrustworthy as to details, and therefore McLaughlin's deduction as to the character of the Desplaines river navigation, based upon this account, is unwarranted.

4026 I am familiar with Thomas Hutchins' Topographical Description. My attention is directed to the excerpt, transcript page 763 (Abst., 318) (reading):

> "The Illinois river furnishes a communication with Lake Michigan by the Chicago river and by two portages between the latter and the Illinois river, the longest of which does not exceed four miles,"

and the conclusion of McLaughlin in regard to that (Trans., 763; Abst., 318):

> "This appears to indicate that this was a route used since the word 'portages' is employed, and that it was from Chicago to the Desplaines or vice versa."

4027 Hutchins' book is considered on the whole good authority, but he did not personally traverse all the region embraced in his map and described in his book. He regards the Desplaines and the Illinois as one river. He may properly say therefore that the Illinois river furnishes a communication with Lake Michigan without implying anything definite as to the navigability of the Desplaines, which, as Hutchins uses the terms, constitutes the upper portion of the Illinois. In describing the Illinois country he refers to Kennedy's Journal for a further account of it. Page 45, footnote:

> "See the annexed Plan of the villages in the Illinois country, &c., and see appendix No. 1 for a farther account thereof."

4028 Turning to Hutchins, page 51, Appendix No. 1, is entitled: "Mr. Patrick Kennedy's Journal of an Expedition undertaken by himself and several Coureurs de Bois in the year 1773,—from Kaskaskias Village in the Illinois country, to the head waters of the Illinois river"; and a foot-

note which reads: "N. B. This Journal was never printed before." This is from the edition of 1778. I call special attention to the portion of the title which reads: "Mr. Patrick Kennedy's Journal of an Expedition," * * * "to the head waters of the Illinois river." Yet it appears from
4029 the journal that Kennedy actually ascended to a point only 15 miles below the Desplaines, and the last sixty miles of this journey was made by land on account of the river being too shallow for their boat, which drew three feet of water. Taken alone, Hutchins' statement on page 42, upon which McLaughlin has based his comment, may be inferred to imply navigability of the Illinois to the Chicago portage. Such an interpretation is not necessary. The historian will naturally construe the passage by Kennedy's Journal, to which reference is made by the author, which makes it plain that the upper Desplaines and a considerable portion of the Illinois below the Desplaines could not be passed over by Kennedy in his boat at the time he undertook so to do. It is a fundamental of historical criticism that a statement is to be interpreted or explained in accordance with its context. Kennedy's Journal is properly a part of the context of this statement of Hutchins. I conclude, therefore, that
4030 Hutchins makes a general statement which by inference may possibly be taken to imply the navigability of the Desplaines, which inference if taken is not borne out by Kennedy's Journal, to which the reader is referred for more detailed information.

Motion to strike out answer of witness, "Which makes it plain that the upper portion," etc.

The WITNESS (continuing): I have examined Illinois in 1837, and the quotation therefrom referred to by Alvord in his direct, at transcript page 345 (Abst., 161) from page 36 of the work, particularly the portion which reads:

"About forty-two miles above the mouth of this stream is a swamp connecting it with the Chicago river, through which boats of some burden have often been navigated into Lake Michigan.

4031 This route was used by the traders as a medium of communication between the great lakes and the Mississippi, from the first discovery of the country by Europeans;—this circumstance first suggested the idea of an artificial connexion by means of a canal at this point."

This book is a compilation, based in part at least upon dubious sources of information. Its contents do not constitute

source material except in the sense of being gathered by one nearer the time than we are to-day, and to be regarded as suggestive, rather than constituting a final authority. We do not know author's name. Have no guarantee except from the volume itself and in the preface, of the care with
4032 which the work was done. The statements therein as to how the work was done leads one to be skeptical as to the validity of the contents of the volume. An excerpt bearing upon this point appears in the record, at transcript page 345 (Abst., 161), testimony of Clarence W. Alvord. I
4034 call particular attention to the portion beginning, "The bulk of the information," etc., and on to the end. The portion of Illinois in 1837, page 37, is referred to in the title page as follows: "To which are annexed the letters from a Rambler in the West." These letters are introduced by the compiler of the volume in the following words (reading):

> "The six following letters from the pen of a talented young Philadelphian, a correspondent of the editor of the Pennsylvania Inquirer and Daily Courier, appeared in the columns of that gazette in the spring of the pres-
> 4035 ent year, under the title of 'A Rambler in the West.' They are beautifully written, and possess more than ordinary interest for those anxious to acquire information relative to the Western Country, more particularly the State of Illinois."

This portion of this volume is source material, and my comment on the volume needs modification to this extent. The second of these letters, entitled Number 2, dated Peru, Illinois, February 4, 1837 reads (reading):

> "Peru is situated on the Illinois river, at the head of river navigation, and is the point of termination of the Illinois and Michigan canal."

My attention is directed to "A Topographical Description of the Western Territory of North America, by Gilbert Imlay," which has been referred to by Alvord at transcript page 207 (Abst., 88), particularly passage, transcript pages 208-209 (Abst., 88-89), beginning with the words: "I have mentioned that it is about 230 from the mouth of the Ohio up the Mississippi to the mouth of the Missouri
4036 and about 20 from thence to Illinois, which is navigable for batteaux to its source. From thence, there is a portage only of two miles to Chicago, which is also navigable for batteaux to its entrance into Lake Michigan, which is a distance of 16 miles," and so forth. Imlay's

book is a series of letters to a friend in England, describing Kentucky. His friend issued them in a book, the immediate occasion being the interest in the west aroused by St. Clair's defeat. Imlay gives us an account, pages 44 to 47, of
4037 the Illinois country, naming as authorities Charlevoix, Carver and Hutchins and saying that their writings have been generally read so as to disseminate a knowledge of this country even in its wild state. (Reading):

> "Great part of it has been described by Charlevoix, Hutchins and Carver. Charlevoix seems to have gone rapidly from Detroit by water the greatest part of the way to New Orleans; Hutchins to have done nearly the same from Pittsburg, down the Ohio to the Mississippi and up that river to the Illinois; so up that, and from thence to Detroit. He has given a tolerably good account of the Illinois country. Carver confined his travels and remarks to the lakes, the upper part of the Mississippi, particularly the river St. Pierre, and the northwestern branch of that river, and to the customs and manners of the Indian nations. These authors have all considerable merit. They have written so agreeably, that their books have been generally read; which has tended to disseminate a knowledge of this country in a savage state."

4038 The book states that Hutchins went down the Ohio from Pittsburg, up the Mississippi, up the Illinois, and thence to Detroit. Imlay expressly states on page 45 that he has not been up the Illinois and begs the reader to travel with Hutchins, saying that he has been told that Hutchins' observations are considerably accurate. Imlay further says (page 47) that he has gone cursorily over the western country, meaning that he had described it cursorily, but he has "purposely avoided taking any notice of those parts which are so little known, and of which I could say nothing but from the information of hunters and savages, which has been industriously collected and published by Carver, Jefferson, and others."

On page 71, it states that the Illinois is navigable for batteaux to its source; that thence there is a portage of ony two miles to Chicago, which is navigable for batteaux to its entrance from Lake Michigan, which is a distance of sixteen miles.

My conclusions based on Imlay generally, and in part on these portions I have called attention to, are that Imlay had never been there. He relied on Hutchins for his account,

and I have considered Hutchins. Hutchins so far as can
4039 be learned from his book had not been in this particular portion of the country, although there is no positive statement to the effect that he had never been. Imlay's statement as to the length of the Chicago river shows his information is incorrect as to the geography of the region, and tends to invalidate his assertions concerning the nature of the Illinois, which he regards as continuing in what we to-day term the Desplaines. I am familiar with the Journals of Marquette, appearing in the volume of the Jesuit Relations, and the excerpts referred to by Alvord, transcript pages 54, 55, 62, 63 and 64. (Abst., 23, 24, 26, 27). My attention
4040 is directed to the following portions of Marquette's Journal, the return on his first voyage, and to the Illinois and Desplaines. (Page 52.) Page 54, concerning his map showing the rivers and lakes by which one navigates across Canada and North America for more than 1200 leagues. Page 59, in regard to the passage by way of Lake Michigan and the Illinois river to the Gulf. Page 62, referring to Marquette's second expedition. Page 63, referring to an account of his leaving his winter camp at Chicago. I agree in general with what Alvord has said as to the historical standing of Marquette's Journal of his first expedition. Joliet lost all his records on the return from this expedition, so the map must have been drawn from
4041 memory. Joliet has reported by those who have left us the record which we have of his report of the expedition, manifested a very enthusiastic temperament, which leads him to exaggerate the ease of his proposed new water route to the Gulf. Frontenac and Dablon based their reports on what Joliet had told them; made one in the summer and the other in the fall of 1674. Dablon, according to the study of Justin Winsor on this subject, seemed to appreciate the situation more intelligently than Frontenac did. Dablon said that a bark could go from Lake Erie to the Gulf if a canal should be made at Chicago. Frontenac said that one could go from the St. Lawrence to the Gulf of Mexico with only a portage of half a league at Niagara, and urged a settlement be made at Niagara and that a vessel be built on Lake
4042 Erie which he thought would go to the Gulf in ten days.

I now read from "Cartier to Frontenac" * * *. (Reading the title page):

"Geographical Discovery in the interior of North America in its Historical relations. 1534-1700. With

full cartographical illustrations from contemporary sources, by Justin Winsor. Boston and New York. Houghton, Mifflin and Company. The Riverside Press, Cambridge, 1894.

(Page 247): It seems clear that Frontenac had not quite understood what Joliet had communicated, or that explorer's enthusiasm had spirited away the obstructions at Chicago."

4043 I will observe that concerning the authority of Frontenac and especially Dablon's reports of August and November, 1674, both are based on conversations with Joliet, whose records have been lost.

4044 Alvord erred in describing the report which he introduced, as Frontenac's. He actually introduced Dablon's report on which I base this comment. Joliet was filled with enthusiasm for his colonizing scheme which led him into unwarranted statements. To illustrate, on page 107, volume 59, of the Jesuit Relations, his statement that if the settler in the Illinois country had no oxen, he could use those of this country, apparently referring to the buffalo. And again, with the wool of this oxen he could make clothing much finer than most of that which we bring from France. I am not aware that settlers used the buffalo as a beast of burden or that they made fine clothing from the wool. Joliet's description of the water route seems to have been equally overcolored, for

4045 his canal of half a league of prairie proved, in actual building to extend upwards of 100 miles, and to cost several millions of dollars. As throwing further light upon the state of mind of the early French explorers, particularly Joliet, I call attention to Schoolcraft's Travels in the Central Portions of the Mississippi Valley, edition 1825, page 322, containing the description of the conclusion of Schoolcraft's journey by way of the Illinois river, and then by horseback on to Chicago (reading):

"Nothing strikes the observer, in riding over these plains, with more force than the paucity of the present Indian population, wheer the old missionaries represent them to have existed in 'hordes innumerable.'

And we have been sometimes tempted to conclude that these zealous fathers, influenced by secular considerations may have been induced to exaggerate the numbers, or have taken little pains to be satisfied of the truth. 'To count,' says the author of the Rambler, 'is a modern

4046 practice, the ancient method was to guess; and where

numbers are guessed they are always magnified.' To increase the importance of the labour, by multiplying its objects, is not a practice peculiar to the era we have mentioned."

Reading under date of August 13, 1821, page 323 (reading):

"To avoid, as much as possible, the great heats of noon, we left our camp at a very early hour. Our track lay over the same pleasing succession of prairies and groves, which have characterized the whole country from Peoria lake. We are no longer surprised at the extravagant praises bestowed upon the picturesque and pastoral features of this country, by Tonti and other early writers; though what is so lavishly said by the same class of writers respecting the positive advantages of the country in a statistical point of view, is to be received with proper abatements. We must allow something for the national warmth of expression of the French, and deduct a little for inaccuracy or carelessness of observation. To their enchanted eyes, every grove was a paradise animated with birds of the most
4047 rare and beautiful plumage, and every prairie a garden filled with the most odoriferous flowers. The forests abounded with delicious nuts and fruits, the river with fish, and every part of the country was filled with the deer, elk, and buffalo. This was all measurably true, and they could add, with perfect consistency, that in every native they met a friend. Such an aspect of things, must naturally have inspired them with sentiments of delight, while their enterprise was praised, their commerce flourished, and their missionaries triumphed.

We do not think they drew a faithful picture of the country; we mean of its more important features, but we think they seldom erred less."

Since Alvord is wrong in his identification of Dablon's report, all his testimony on transcript pages 57 to 59 in-
4048 clusive (Abst., 24, 25) has no application. But, he says on transcript, page 58, that Frontenac's interest in routes of trade should be checked up by Winsor's remark in the volume Cartier to Frontenac, which I have quoted, as to Frontenac's lack of inteliigent appreciation of the situation.

I now refer to Marquette's Journal of his First Voyage of 1673, Thwaites' translation, 59 Jesuit Relations, page 87.

Marquette and Joliet had the lightest equipment possible on this expedition, page 91 (reading):

"We were not long in preparing all our Equipment, although we were about to Begin a voyage, the duration of which we could not foresee. Indian Corn, with some smoked meat, constituted all our provisions; with these we Embarked—Monsieur Jollyet and myself, with 5 men —in 2 Bark Canoes, fully resolved to do and suffer everything for so glorious an Undertaking."

Further light is thrown on the nature of their equipment by the passage, page 109 (reading):

4049 "From time to time, we came upon monstrous fish, one of which struck our canoe with such violence that I Thought that it was a great tree, about to break the Canoe to pieces."

Here occurs Thwaites' footnote (reading):

"This was probably the catfish of the Mississippi (Solurus Mississippiensis). They sometimes grow enormously large, and strike with great force any object that comes in their way.' B. F. French's note, Disc. of Miss. Valley, p. 17."

A further passage on the equipment is at page 137 (reading):

"We take leave of our Illinois at the end of June, about three o'clock in the afternoon. We embark in the sight of all the people, who admire our little Canoes, for they have never seen any like them."

A further citation refers to the hopes which Marquette expresses of being able to follow up what we call the Mis-

4050 souri river and thence by portages to pass to the Western Sea (reading page 143):

"From them I have learned that, by ascending this river for 5 or 6 days, one reaches a fine prairie 20 or 30 Leagues Long. This must be crossed in a Northwesterly direction, and it terminates at another small river, on which one may embark; for it is not very difficult to transport Canoes through so fine a country as that prairie."

If this remark be true, and evidently Marquette would be better qualified to pass on its validity than the historian of today, for he was better acquainted with the character of the canoes which he himself and Joliet were using on this expedition, it would be equally easy to transport canoes from the Chicago river to the Illinois river, I believe a somewhat less

distance through a country probably equally as level as that in the upper region of the Missouri to which Marquette here refers.

I conclude that the document proves nothing as to the nature or the use which may be made of the Desplaines river,
4051 and that this observation may be applied, so far as the circumstances justify in each individual case, to later voyages or other voyages in bark canoes made by the early French explorers, or by others who used this means of transportation.

I have examined Joutel's Journal of La Salle's last voyage, and the passages referred to by Alvord, at transcript, pages 102, 103 and 105 (Abst., 43-45), as throwing light on the use of this route, the particular portion beginning at transcript, page 104. Joutel became a leader of La Salle's party after the murder of La Salle, came up the Mississippi river
4052 and Illinois by way of Chicago and Canada. It appears that the party on this expedition was met at Fort Lewis in December by two men who had come down from Montreal. These men came to Fort Lewis, which was the fort on the site of Starved Rock, which had been established by La Salle at a prior date, to notify Tonty that they had left behind at Chicago three canoes laden with merchandise and other things, and giving as their reasons for this that there was too little water in the river and what there was, was frozen. (See transcript, page 103, Abst., 44.) Tonty procured
4053 40 Indians to come to Chicago and carry the merchandise back to the fort. The Journal shows that in December it was found impossible or impracticable for the men from Montreal in charge of these canoes which were destined for Fort Lewis, or at least for a point that far down the Illinois, to bring them any farther than Chicago, or down the Desplaines. The Journal shows that a party of men with canoes passed from Fort Lewis to Chicago in 1688, the period occupied in the journal being from March 21 to 29; 8 or possibly 9 days, a distance of practically 100 miles. It further shows they made this passage with toil and difficulty. They had often to go into the water and drag the canoe along
4054 and that some of the party at least suffered much from this circumstance. It is evident from the account and what we know from other sources concerning the subject that this was in time of spring flood on the Desplaines. Marquette in the accounts of the journal of the second voyage, 59 Jesuit Relations, 187, shows that the spring flood in that year began

at Chicago on the 25th of March; that he was flooded out of his winter camp in the course of the next few days. On March 31, he began his journey from Chicago down the Desplaines, the water was 12 feet higher than it had been at the time he was there on his first expedition, 18 months before.

My conclusion as to the whole narrative is that the account does not enable one to draw any conclusion whatever as to the normal condition of the Desplaines river, and makes it perfectly clear that the stream was subject to great fluctuation as between different seasons and periods of the year.

4055 I have made an analysis of John Kinzie's letter, July 15, 1815, to Cass, referred to by Alvord, at transcript, page 230 (Abst., 100), and referred to by Professor McLaughlin at transcript, page 769 (Abst., 320), wherein he speaks of it as a source of the highest quality, next to an absolute survival. The letter, page 230, is written to Cass, as a plea for the establishment of a garrison at Chicago and was used by him in a report to the Government of similar purport. Kinzie had lived upwards of twenty years in the country at the south end of Lake Michigan, and was acquainted with its importance. The executive of the United States was anxious to establish peaceful relations with the Indians. The most hostile

4056 were Chippeways, Pottowatomies, Ottawas and others living between Mackinac and the south end of Lake Michigan, but who were forced to migrate at certain seasons to the waters of the Chicago, Fox and Illinois rivers. The intercourse of these tribes with the traders of the southwestern company who were hostile with the American traders accounts for their hostility. The importance of establishing a military post near their place of general rendezvous is obvious. A garrison was necessary in order to keep order and restrain the British traders, whose interference will ever keep them hostile to the United States. As the navigation of those waters will, in a few years, be important to the United States, and as at present boats of several tons can pass from Lake Michigan into the Mississippi river, there being only 4½ feet difference in the elevation of the two waters, it would be politic to secure the friendship of the hostile Indians. It is pointed out that Chicago is all important to the Illi-

4057 nois country as it is the key of commerce and has command of the trade of a vast territory. McLaughlin considers this as a source of highest quality. I observe that as he apparently concluded, Kinzie undoubtedly knew the condi-

tion of the region of which he spoke, but McLaughlin failed to take into account all considerations which might influence Kinzie's statements on those facts or conditions, and fails to show that this is a conscious source, whether Kinzie may have had a prejudice or motive for misrepresenting the actual facts. Most of what historians have said of the character of John Kinzie is favorable. On the other hand, Kinzie
4058 was a man of violent temper. His only means of livelihood was the trade at Fort Dearborn prior to the massacre of 1812, which livelihood was wiped out by the massacre and war. Obviously, he would have an interest in reviving the trading position he held at Fort Dearborn prior thereto, and he points out that to do this, a garrison at Chicago is essential. There is evidence in existence worthy of serious consideration tending to indicate that Kinzie killed his rival, John Lalime, in a business quarrel in a way suggestive of murder. I don't know, I say, that it is susceptible of proof. Though a United States citizen, he entered the British service during the war of 1812 and while so engaged, his associates believed he proved a traitor to the English, and they sought to meet out punishment upon him. In this year, 1815,
4059 in which this letter is written, Kinzie was still in the British service.

4060 I have examined "LaHontan's Voyages to North America" and that portion which is referred to in the cross-examination of complainant's witnesses at transcript, page 500 (Abst., 218) (reading):

> "The 29th I arrived at the Village of the Illinois; and to lessen the drudgery of a great land carriage of twelve great Leagues, ingag'd four hundred Men to transport our Baggage, which they did in the space of four days."

4061 LaHontan's account of the trip to Long river is generally agreed by historians not to be valid or authentic. However, except for this 16th chapter of LaHontan's, historians give him high rating for keen observation and veracity. I referred to Thwaites' introduction to LaHontan's voyages to North America, page XXXVII, Volume 1 (reading):

> "A participant in some of the most stirring compaigns in the brilliant epoch of Frontenac's government, LaHontan presents to us admirable reports of these events. We have also in his pages first-hand accounts of the political institutions of the colony—its officials, courts, and local government, combined with incisive characteriza-

tions of the respective governors, intendants, and official noblesse. The strutting functionary, the zealous Jesuit who balks at no hazards, the gay soldier, the hardy habitant, the roving coureur de bois, and the naked savage, all stand out in bold relief upon his pages. Even the
4062 birds and animals, the plants, and the minerals of this strange land do not escape our observer's eye. Thus not only in history, but topography, geography, ethnology, and natural history, all of it the record of personal knowledge, LaHontan's work stands as one of the important sources for the intimate study of New France.

The frequent neglect of Lahontan by scientific and historical students, has not been justified by the lack of material in his pages. As already intimated, it is in large measure due to the spurious character of the alleged discovery of the River Long, described in the sixteenth Letter. Investigators have, from this one chapter, rejected all."

The motive which was probably back of the fabrication of Chapter 16 would naturally lead him to stick to the geographical truth as he understood it. He wished his account of his new explorations to gain credence. It was clearly to his advantage to describe the portions of the routes already known to the whites as accurately as practicable, and the account displays knowledge of the geography of the route from Mackinac through Green Bay and up the Fox river.

Assuming then that he never made the Long river trip, and this I understand is in accord with the general conviction of historians, but that he only pretended to have
4063 made it, he was intimate with Duluth, Tonty, Perrott, and others, and probably heard from them accounts of the geography of those regions they were familiar with; he may have drawn his account of Chicago and vicinity from Tonty, therefore, I conclude his description of this vicinity may be taken as an indication of the belief on La Hontan's part, based on information which may have been gained as I have pointed out, that the Chicago portage necessitated a great land carriage. Thwaites' footnote, La Hontan, Volume 1, page 178, dealing with the Wisconsin river says (reading):

"Lahontan's description, although brief, is not inexact, and appears to be that of one who had seen the alternating cliffs and meadows which border the Wisconsin, one of the most beautiful of western streams. See chapters on the Fox-Wisconsin waterway in

Thwaites' Down Historic Waterways (Chicago, new ed. 1903). Ed."

4064 This description of the Fox to which the note alludes appears in letter 16 of Lahontan's work, the trip to the Long river. My reference to his knowledge of Duluth, Tonty, Perrott, and others is based on an extract from Roy, in the Royal Society proceedings of Canada for 1894, Volume 12, page 143, heretofore appearing in the record. Thwaites represents Lahontan as being a worthy and important source, aside from the Long river expedition story.

4065 Other historians of repute and standing, Parkman and Winsor, cite LaHontan as authority for their statements. I have examined the report of James Logan from Hurlbut's Chicago Antiquities, page 129, which reads (reading):

> "From Lake Huron they pass by the Strait of Michilmakinac four leagues, being two in breadth, and of a great depth, to the Lake Illinoise; thence one hundred and fifty leagues on the lake to Fort Miami, situated at the mouth of the River Chicagou. This fort is not regularly garrisoned. From hence came those Indians of the same name, viz., Miami, who are settled on the forementioned river" (Miami, now Maumee) "that runs into Erie. Up the River Chicagou they sail but three leagues to a portage of a quarter of a league; they then enter a very small lake of about a mile, and have another very small portage; and again of another of two miles, to the river of Illinois; thence down the same one hundred and thirty leagues to the Mechasipi."

4066 Also copy of Logan's statement found in 19 Michigan, Pioneer Historical Collections, page 5. According to complainant's witnesses, Logan's description is a rough draft of his report prepared for Governor Keith of Pennsylvania in preparing a memorial to the British Board of Trade. Alvord testified Keith and Logan were regarded as men that were very familiar with colonial affairs. Keith was appointed Governor in 1717. The date of the report is 1718. It seems a fair inference, therefore, that Keith had little opportunity or time to acquire familiarity with the interior, particularly the region around the foot of Lake Michi-

4067 gan. Logan had been Penn's chief representative in Pennsylvania. It has not been shown that he had ever been in Illinois or this portion of the country at the foot of Lake Michigan. I would say it is very improbable he ever had been. At this time the seaboard English colonies

had only hazy ideas of the geography of the interior of the present United States, even for example, of the upper Ohio valley. The report indicates that Logan was not talking about modern Chicago, or his information concerning it was so inexact as to lead him to place a fort where none existed.

The Board of Trade report, 19 Michigan Pioneer and Historical Collections, page 5, is a mere repetition of Logan's statement to Keith. Alvord said, transcript page 131 (Abst., 56) that it would be regarded as the report of a body whose purpose it was to investigate, and as giving information which the Board at that time possessed. This is a very carefully guarded statement, and says very little; would not take
4068 issue with it as it stands, but merely observe its significance. Englishmen generally were very ill-informed concerning American conditions in this period, and my statement has particular force with reference to conditions in the interior of the continent, a region belonging to another nation than Great Britain. The inclusion of Logan's report in the Board of Trade report adds nothing to its historical repute. Its only force is as a statement by Logan. My statement that Logan placed a fort here which did not exist, is based on 16 Wisconsin Historical Collections, page 331, report of Ramezay, appearing at transcript, pages 123 and 124 (Abst., 53), dated November, 1715, which urges the establishment of a fort at Chicago. If a fort already existed at Chi-
4069 cago, November, 1715, this recommendation would not be made.

I have examined Long's report, which is an extract from that report printed in the 16th Congress, Document 17, submitted by Calhoun, December 28, 1819, and also in State's Papers Miscellaneous, vol. 2, and the portions thereof which have been read into the record. I also procured and
4070 examined the entire report as submitted by Major Long as published in the National Register for March 29th, 1817, being volume 3, the report being found on pages 193 to 198.

Q. Will you give your analysis of that report and your conclusions upon that portion of it which was read into the record by the government?

Objection, the question assumes that the full report was not presented in the record.

A. The full report as Secretary Calhoun presented is to Congress was copied in the record. Long's full report made

to the War Department was not copied into the record. The report is dated March 4th, 1817.

COUNSEL FOR COMPLAINANT. We ask that the additional matter be submitted in the record if he is going to comment upon it.

4071 The WITNESS. Long submits it with his plans for the country through which he travelled, which with the report are grounded principally upon his own observations. I am giving a synopsis of the report. He says, Volume 3, National Register, page 193 (reading):

"In many respects, however, I have had recourse to intelligence collected transiently from persons who have traversed those parts of the country which it was not in my power to visit.

I take the liberty of introducing, under different heads, the several subjects proper to be comprehended in the
4072 report; in relation to which I shall only be able to offer general ideas, as the time employed in the reconoiter has been too limited to admit of a particular and minute detail."

The country Long investigated dealt with that lying between the Ohio and the Mississippi, the Rock and Milwaukee rivers, Lake Michigan and Michigan Territory, and on the east side of the State of Ohio. He names principal rivers; points out that the Ohio, Mississippi and Illinois, with constituent streams and the Chicago, are most important from a civil and military viewpoint, the reason being, page 193 (reading):

"Being the channels through which trade and all kinds of intercourse will be kept up, hereafter, between distant sections of the Union. These may be considered the cords which will unite the northern interests of the country, and will eventually become the most important links in the grand chain that surrounds the whole."

He says the present waterway from the Desplaines to the Chicago, page 195 (reading):

" * * * needs but little more excavation to render it sufficiently capacious for all the purposes of a canal; it may be supplied with water at all times of the year
4073 by constructing a dam of moderate height across the Desplaines, which would give the water of that river a sufficient elevation to supply a canal extending from one river to the other."

He had in mind a canal between the Chicago and the Des-

plaines. Points out, Desplaines and Illinois may be rendered navigable by construction of sluices. This can be done by clearing away loose stones from the banks 2 or 3 feet high on each side of the sluice. There are but few places where this sort of work will be necessary, probably not over two miles in all. Thus, a water combination between the Illinois and Lake Michigan may be kept open at all times, sufficient to answer all the purposes for which a canal will be wanted for many years to come.

Long did not personally visit all the region described in the report. He says in the early part of the report:

> "In many respects I had recourse to intelligence collected transiently from persons who have traversed those parts of the country which it was not in my power to visit."

And he says he can report "only generally as the time em-
ployed in the investigation was too limited to go into
4074 detail." I think, however, it is probable from what follows, that Long himself did come to Chicago. His report is dated March 4th, 1817. The site of Fort Dearborn was reoccupied by U. S. troops, July 4th, 1816. It seems probable that such an investigation would not be undertaken in the winter time, and it is likely that Long having made his investigation would not unnecessarily delay making his report upon it. I infer he made his tour in the spring of 1817, therefore saw the Chicago-Desplaines route when the water would be higher than at other seasons of the year. Long's report is squarely in favor of the canal, saying that a navigable connection could be opened between Lake Michigan and the Illinois river, giving the details. I conclude Long's observation was not thoroughgoing and that he was misled as
4075 to his conclusions by the fact that he was here in the spring time, and had no opportunity to observe the Desplaines and Illinois at other seasons of the year. He believes a short canal from Chicago to the Desplaines only is needed; that little need be done to make the communication already there adequate for all purposes. His conclusions are erroneous in several respects. That little need be done to render the Desplaines navigable for small boats, thus keeping open the water communication between Lake Michigan and the Illinois at all times and adequate for years to come. As to my observation that a short canal from Chicago to the Desplaines only is needed, I have in mind the experience of Schoolcraft on his journey up the Illinois in 1821, the statements that are

made in the report of Graham and Philips, and the statement of Hubbard, page 39, Hamilton's Hubbard. I say
4076 the statement that little need be done to render the Desplaines navigable for small boats, etc., is erroneous among other things because of what Schoolcraft records of his experiences in his journey up the Illinois to Chicago in 1821, the report of Graham and Philips and what Hubbard said as to the Desplaines sometimes being so dry that it could be crossed without wetting the sole of the feet. To what I said bearing upon the first error, I would add the experience of traders with whom Schoolcraft talked on that expedition, 1821; a letter of Tousey to Schoolcraft and the experience of those who later built the Illinois and Michigan canal.

4077 As bearing on the correctness of Long's statement, Charlevoix says the river is only a brook in this upper portion and that he was informed that in this season of the year, September, it would not float a canoe. St. Cosme states that except in spring a portage must always be made in the lower portion of the river since there was not water enough in the river to permit the passage of the boats.

La Salle's statement discussing Joliet's report as to the practicability of water communication between Lake Michigan and the Mississippi and the Gulf of Mexico, points out that this might be possible for a short time in the spring, but for only fifteen or twenty days. It is my impression this discussion applied particularly to somewhat larger boats than ordinary canoes.

4079 If we assume that La Salle did refer to such boats as Long referred to when La Salle said that for only 15 or 20 days there was water during the year, it would tend to invalidate Major Long's statement.

4080 Counsel for Complainant thereupon read into the record an excerpt from Long's Report which the witness had commented upon. 3 National Register, 1817, page 196 (reading):

> "At Chicago, situated on the south west part of Lake Michigan, is Fort Dearborn, destroyed by the Indians in August, 1812, and rebuilt in part by the troops now stationed there under the command of Capt. Bradley. Two companies of soldiers arrived at this place on the 4th of July last, and, under the direction of Capt. Bradley, commenced the erection of a pallisade work and quarters large enough for their reception. The works are in a state of forwardness that does much credit to

their industry, and will probably be completed in the course of the next season.

Fort Dearborn is situated upon a point of land formed by a bend in Chicago river, and is about 800 yards distant from the mouth of the river. Directly opposite to the present site of the fort, on the other side of the river, is a position better adapted to the defence of the place,
4081 as it would afford a more complete command of the entrance into the river, and at the same time command the anchorage to a very considerable extent. This position is upon a point of land lying between the river and lake, and ought to be fortified in a manner calculated to resist any naval force that may be brought against it."

Recurring to my statement that in the year of 1815, in which the letter by Kinzie to Cass was written, that Kinzie was still in the British service, I call attention to 16 Michigan Pioneer Historical Collections, pages 327 to 341. The document entitled "Court of Inquiry," which is the record of the proceedings of a court of inquiry held by order of "His Excellency, Major General Sir S. P. Robinson, K. C. B., commanding in Upper Canada & Administering the Government thereof. Fort Drummond 10 Oct. 1815." It is one of the documents
4082 gathered evidently from the British Archives. It names the members of the Court and states (reading):

"The Court being assembled proceeded to the investigation of the following charges preferred by the Government of the United States against Lt. Joseph Cadot of His Majesty's Indian Department.

1st. For having offered money to the Indians for the
4083 scalps of two persons of the name of Chadronet & Kinzie, then residing in the Territory of the United States.

2nd. For having told the Indians that the Fortifications at Michillimackinac were all in a situation to be blown up, if at any time the Americans should go there & that the peace was but an artifice.

Previous to the commencing the Proceedings Lt. Col. McDonall thought it right to state to the court, his motives for sending Lt. Cadot on the duty alluded to, and also to state the verbal instructions which were given to him—Lt. Col. McDonall being desirous to send a supply of Presents to the Indians of the Grand River on Lake Michigan, in Nov: 1814 availed himself of an opportunity presented by Mr. Coursolle (a Trader) setting out for that place with a supply of goods for the Indians

of the neighborhood. Aware that they were divided in opinion as to the attachment to the two governments, Lieut. Cadot was directed to assemble the Indians he could depend upon, for their mutual protection. This was the more necessary from the circumstances of there being frequently in that part of the country, two notorious characters, the one (Chadronet) a murderer and both guilty of treason to their country."

The other of these two notorious characters is John Kinzie (reading):

4084 "These men had likewise done much mischief among the Indians. Even when employed in the British service, under Mr. Dickson at Detroit, in 1815, they were industriously exerting themselves to seduce them from our alliance, but their treachery being detected they were sent, in irons, to Amherstburg. Kinzie was forwarded in the same state to Quebec but Chadronet (then an interpreter in His Majesty's Indian Dept) contrived to make his escape to the Americans."

As the basis of my statement that Kinzie probably killed his business rival Lalime, I might refer to any one of a score or a hundred histories that refer to this period of Chicago history.

4085 I refer particularly to Andreas' History of Chicago, volume 1, page 105, which gives an account of the Lalime homicide. There is no question on the part of anyone who pretends to be familiar with this period, that Lalime was killed by Kinzie, the question being as to the amount of culpability in Kinzie in the affair. My authority for that is "Chicago from 1803 to 1812, by General James Grant Wilson, page 4 (reading):

"Cooper who succeeded Dr. William C. Smith, First Surgeon of Fort Dearborn, was, in 1810, the bearer of a challenge from Lieutenant Hamilton to John Kinzie the Indian trader, who declined to accept it, but fell to abusing and cursing the First Lieutenant, which occasioned a violent quarrel between the bearer of the challenge and Kinzie. From that day Cooper held no further intercourse with the Indian trader. Half a century

4086 later, after describing Kinzie as a man of ungovernable temper, Cooper charged him with the murder of Lalime, the interpreter, adding that he frequently had bitter quarrels with people. Gurdon S. Hubbard, who went to Chicago in 1818, gave me a different account

of the unfortunate affair, representing that the two men had a bitter altercation, that Lalime who was armed with a pistol attacked Kinzie, who in self defense, stabbed the interpreter, thereby causing his death. The Indian trader sought safety in flight, but returned a few weeks later. As he was not arrested by the officers of the garrison, as Kinzie anticipated, and as Lalime was a particular favorite with them, it is fair to assume that Hubbard's version of the occurrence is the correct one."

I observe that this citation points out as we see in Hamilton's Hubbard, that Hubbard came to Chicago for the first time in 1818, six years after the killing of Lalime, and that Hubbard in the Life and the account he has given Wilson, followed the traditional account of the Lalime killing, which will be found set down in various histories of early Chicago. I cite this document, not as showing what Hubbard said or thought about the Lalime affair, but as showing that Dr. Cooper, who was the surgeon here at Fort Dearborn for 3 years, for 50 years after this time believed that Kinzie had murdered Lalime.

I have examined the Haldimand Papers, Brehm to Haldimand, 19 Michigan Pioneer and Historical Collections, page 405, which has been referred to by Alvord, transcript page 171-172 (Abst., 73-74), the particular passage beginning (reading):

"After considering the situation of Major de paister I apprehend he runs more risk from Chicagu by the Illinois River, then Capt. Larnould, as your excellency will have and yet see, what precautions and means Col. Bolton has taken and is still constant sending partys towards Tuscarowas, and Fort Pitt to harass and disturb their proceedings but Clark having reduced Vincennes as early as February may have time to attack de paister by the above mentioned River, if the least preparation has been ordered by him at his leaving the Illinois."

4088 My conclusion is that this letter does not necessarily indicate anything as to the navigation of the Desplaines river. It simply states: "I apprehend he runs more risk from Chicagu by the Illinois river," and indicates nothing as to the means of transportation in view. It may be a fair inference to suppose that it was to be by boat, but any such inference must be controlled by our knowledge of the customary use of the Desplaines if such can be determined. It does not necessarily follow that travel on such an expedition

was to be entirely by boat, perhaps not even at all by boat, as oftentimes in similar expeditions they travelled by land. For example, 10 Michigan Pioneer and Historical Collections, page 569, referring to La Mothe's Plan of an Expedition against the Illinois. The character of the expedition that the writer apprehended risk to Major De Paister from, certainly does not appear.

4089 The illustration deals with the expedition of the British and Indians from Detroit against the Illinois. According to the plan of La Mothe in this document, they were (reading):

> "Leaving Detroit with a small army of and some neighboring Indians, Sauntaux, Hurons & Misthey will come by land to St. Josephs a journey of eight or ten days. Then after having taken the Poux Nation, who are settled on this river, they will come to the branch of the Chicagoust & the Quinquiqui to try to get the Indians of the small fort of Milanaquis & another village, who have appeared, till the present to give their services to the Illinois & lately conducted a party to St. Joseph who took the Commandant placed there by Governor Saint Clair."

I now take up the Navigator, referred to in Alvord's direct at transcript page 315 (Abst., 146) and read from the preface immediately following the portion of the preface read by him. (Reading):

> "IV. Conscious of the imperfections of the Navigator, we depend much on the goodness of others to detect its errours and point them out to us, in order that they may be corrected in a future edition; observations, also, either of the rivers or of the country through which they run, tending to enhance its value and make it more generally useful, will be thankfully acknowledged."

At transcript page 316 (Abst., 146) Alvord said of this book that:

> "This is regarded by historians as the source of information in regard to the west and the navigation of the rivers in the west and has been used as such by historians."

4091 I think it may properly be considered as source material for the matters and period it purports to deal with; on the whole is a reliable compilation which should be used with caution and subject to the tests that a historian usually

employs in using such material. The book deals primarily with the navigation of the Ohio and Mississippi. (Reading):

> "It being designedly calculated as an useful and necessary guide to those who navigate or trade on the rivers of which it treats, much pains have been taken to revise, correct and enlarge it throughout; to do this satisfactorily, we have had the assistance of several of the most eminent pilots and navigators, and the use of late manuscript journals of gentlemen of observation, to whom we present our compliments for their aid and politeness."

The editor does not assume personal responsibility for all the statements in the book, deprecates its imperfections
4092 and requests his readers to point out its errors that they may be corrected in future editions. He is not entirely frank and truthful with his readers. In the advertisement of the 1824 edition, the 11th, he stated:

> "This edition is considerably enlarged by a more comprehensive description of the principal towns on and adjacent to the rivers; their commerce and manufactures; natural curiosities of the country, &c. The directions for navigating the Mississippi river from the mouth of the Illinois to that of the Ohio river; with the description of the District of Mobile, and geographical notice of Florida, will be found interesting."

This seems to mean that this particular edition has been improved as compared with preceding ones, yet turning to the 7th edition published in 1811, we find the same para-
4093 graph, word for word. It is possible that references to earlier editions than that of 1811 would show that the paragraph was written even earlier than that.

Now, referring to the passage from the Navigator that "between a branch of the Illinois and the Chicago river, which empties into Lake Michigan, there is a portage of two miles; from this portage to the lake is a batteaux navigation of 16 miles," which has been referred to by complainant's witnesses. It does not appear from the Navigator that the editor, Cramer, had ever been over this route. It is probable his statement is based on some other authority, and in support of this conclusion, I cite that he says "the Chicago river is 16 miles in length from the portage to the lake" and this entire statement concerning the portage of two miles and

batteaux navigation from the portage to the lake of 16 miles read as though it were taken from Imlay.

4094 On page 168, 1811 edition, he states: "The Illinois is a fine navigable river, interlocking by a portage of four miles with the Chicagou, a short river which empties into Lake Michigan" and so forth. This does not agree with the statement as to the portage being two miles in length.

Would say in conclusion the Navigator is apparently a reliable source. The author uses information of others, warns reader of possible errors, does not pretend to have been over the route, states that the maps of the Ohio river are based on personal surveys, which by implication may exclude his having been over the other portion of the route described in the book, states incorrectly the length of Chicago river,

4095 I presume following Imlay in this. One time states length of portage is two miles, another time as four miles. He had moderately correct general secondhand knowledge, in part at least, on the region in question. The book does not decide the question of the navigability of the Desplaines, for while his statement on page 168, would seem to imply as much, we know from other sources that if this statement is so intended, it is untrue for the greater portion of the year.

Whereupon, counsel for complainant read the complete sentence from page 168 of the Navigator as follows (reading):

> "The Illinois is a fine navigable river, interlocking by a portage of four miles with the Chicagow, a short river which empties into Lake Michigan, through which channel the great route of the fur and peltry trade is carried on between St. Louis and Michilimackinack, and the other northern lakes."

4096 The WITNESS (continuing). Reading advertisement from navigator, page 1 (reading):

> "At a very considerable expense, the maps of the Ohio and Mississippi rivers have been added; and we flatter ourselves with the hope that they will be found as useful to the navigator as they have been troublesome to us. These of the Ohio have been taken from actual surveys. Those of the Mississippi partly from survey and partly from private charts, taken as accurately as the nature of that river will permit.
>
> The account of the Missouri and Columbia rivers, as

traversed by Captains Lewis and Clark, under the direction of the President of the United States, though but a brief view of that interesting voyage, we hope will be found entertaining. It has been collected from the letters of Captain Clark and other publications since the return of the party."

4097 Referring to Ogden's Letters from the West, first cited in Alvord's direct, transcript page 280 (Abst., 128) and to the comment thereon by complainant's witnesses, Alvord referring on page 281 to Ogden's speaking of being on the Illinois river, and the further statement on the same page that "In another place he also speaks of being there," and to Thwaites' statement that Ogden travelled down the Ohio to its mouth, would say I have examined Ogden generally and with reference to the extracts heretofore referred to by Alvord and Thwaites. Summarizing Thwaites introduction to Ogden as contained in the preface of Vol. 19 of Early Western Travels where Ogden was reprinted under Thwaites' editorial supervision, he states Ogden was a merchant of Massachusetts, went west in 1821; wrote letters home to his brother on his journey and observations; stay in west lasted 2 years, reached Pittsburg, April, 1821, devotes first letter to description of its prosperity and prospects and neighbor-

4098 ing points of interest. In second letter, describes Ohio river journey to Cincinnati and to Louisville; he devotes the 3rd letter to the journey from Louisville to the Mississippi. Reading Thwaites' introduction, page 1 (reading):

"These three letters comprise Ogden's account of his personal wayfaring adventures. In preparation for the press he saw fit to add to these communications, written apparently only for family reading, some succint information on the history, topography, and possibilities of the west, gathered from various sources; this, in order that his letters might prove 'beneficial to those for whom they are particularly designed—the great number of emigrants who are constantly moving to that country.' For our present purpose, the chief interest of the book centers in the early portions—the added data being but a historical and geographical compendium somewhat hastily constructed."

Alvord states that in letter 5 Ogden speaks of being on the Illinois river. I am unable to find any statement to this effect in the letter.

Alvord states that in another place he speaks of going there. The only reference to which this seems to
4099 apply occurs on page 60, original edition of Ogden, and reads: After being some time in Illinois I entered Indiana." I will read the opening statement only. The whole passage has been copied with slight alterations from another volume published prior to this time by another traveler through the west. I have shown Alvord would seem to give the impression that Ogden had been in Illinois. Thwaites, in his introduction to Ogden's Early Western Travels, volume 19, pages 11 and 12, in the introduction I have summarized says Ogden devotes the first letter to Pittsburg and neighboring points; that in the second he describes the Ohio river journey to Cincinnati, and in the third he describes Cincinnati and Louisville, and the journey thence to the Mississippi. Page 11 (reading):

"These three letters comprise Ogden's account of his
4100 personal wayfaring adventures. In preparation for the press he saw fit to add to these communications, written apparently only for family reading, some succinct information on the history, topography, and possibilities of the west, gathered from various sources." * * *

"Page 12: The added data being but a historical and geographical compendium, somewhat hastily constructed."

Thwaites' seems to be in error concerning what Ogden actually did and concerning the credit which ought to be attached to Ogden's work. If Ogden ever travelled down the Ohio to its mouth as he purports to have done in this volume of his, he certainly did not himself take the trouble to write a large part of his reputed observations or description of his journey, but plagiarized much after the manner of the 16th letter of La Hontan, including these first three letters which Thwaites has said comprises an account of his personal adventures or observations from other works which were in existence at the time when this volume of Ogden was published.

4101 Summarizing, I have shown Alvord's statement attributed to letter 5 of Ogden is not to be found in the letter; that the other reference I suppose Alvord referred to has been plagiarized by Ogden from another work. Ogden's work being unworthy of credence, and he probably never was in Illinois or on the Illinois river at all, no more significance

should attach to his account than this, that even though he may have lied about his own journey, he would naturally make his description as correct as practicable to gain credence for his story. At best, this is a second-hand account. I believe a man who does not cite his authorities, whom I am prepared to show plagiarized flagrantly and lies
4102 openly about the way his work was produced, and about his travels and experiences.

As to the section of letter 5, read by complainant's witnesses, which describes the Illinois and Chicago route, and passage of boat over the route, I assert that this is plagiarized from a pamphlet by Andrew Miller, published in 1818; the pamphlet is entitled "New States and Territories, Or The Ohio, Indiana, Illinois, Michigan, North-Western, Missouri, Louisiana, Mississippi and Alabama in their Real Characters, in 1818, etc., by Andrew Miller."

4103 To determine the sources of this writer, I read from the title page as follows (reading):

"With a few words concerning the impositions and difficulties experienced in moving, settling, &c., collected from the accounts of gentlemen residing in various parts of the different states and territories—from Indian Traders, Indian Agents, Officers of the late Army, Surveyors, Travellers—the different Authors ex-
4104 tant on the subject, viz.: M'Kenzie, Shultz, Lewis and Clark, Pike, Carver, Emigrant's Directory, Ohio Gazetter, and Personal Observation."

Since Ogden's account is plagiarized from this it will appear that no credit whatever can be given it as Miller does not even pretend to do more than make a compilation from the numerous sources of information he has indicated, and which have just been read.

4105 Have gone through Ogden's work and computed the portion I am able to identify as plagiarized. Have not counted every word or line but based my estimate on number of lines on the page in the edition of Ogden and the number of lines on certain pages that have been plagiarized, and so carried out my calculation. In the first three letters which Thwaites regards as narratives of personal observations, there are approximately 25 pages of matter. I call attention to this which Thwaites says comprises narrative of Ogden's personal adventures and observations, approximately
4106 14 pages I have identified as plagiarized. For the rest, there is a total of 94 pages in the book, not deducting

fractional pages for chapter beginnings, etc. Of these pages, 12 are devoted to a discussion of La Salle and Hennepin which it seems a fair inference is taken from someone's else, though I have not identified the sources. In this last section, I have divided the book as Thwaites first divided it. 12 pages Ogden acknowledges were quoted from another authority. 2 1/2 more consist of a floral calendar of Ohio, which he states had been furnished by a local observer, which leaves 66 1/2 pages ostensibly written by Ogden. I have identified what amounts to 33 1/2 pages; approximately 1/2 is plagiarized from other works. To summarize, of the first three letters, 25 pages, almost 2/3, or 14 pages and a fraction I have

4107 identified as plagiarized, and of the remainder, 33 1/2 out of 66 1/2 are plagiarized from other works, leaving out the possibility of still further plagiarisms from still other works which I have not been able to identify. Having found so much plagiarized, it is not safe to assume that the rest is original.

4108 Ogden was a very clever plagiarizer. He takes these other books, cuts them all to pieces, brings in a sentence at one time and another sentence or a paragraph or two or three at another point; turns them all around.

(The respective passages referred to by the witness

4109 from Miller and Ogden are as follows):

(Miller.)

"Illinois Territory.

This territory lies west of Indiana and was formerly included in it. It is 350 m. n. and s. and on an average 200 m. e. and w. containing 35,000 white inhabitants and 5,000 Indians. Its latitude on the north is the same as Ohio and Indiana 41 degrees 50 minutes. On the south it has 37 degrees. The Ohio river separates it from Kentucky on the south, the Mississippi from the Missouri territory on the west, a line parallel with the south end of Lake Michigan from the

(Ogden.)

"The State of Illinois lies west of Indiana, and was formerly included in it. This state is three hundred and fifty miles from north to south, and on an average two hundred from east to west; containing about forty thousand white inhabitants, and between four and five thousand Indians. Its latitude on the north is the same with that of Ohio and Indiana, forty-one degrees fifty minutes. On the south it has thirty-seven degrees. The Ohio separates this state from Kentucky, on the south;

N. W. Territory on the north, the Wabash for 240 m. from its mouth from Indiana on the east. This territory so nearly resembles Indiana in soil, climate, productions, and most other things that a slight description will suffice.

Rivers and Streams. To particularize all the rivers and creeks would be tedious and unprofitable. I shall barely mention the most important,—The *Illinois* is the largest that is peculiar to this territory. This is a beautiful river rising near the south end of Lake Michigan. Its head branches are called Plein and Theakaki or Kankakee. The Plein is navigable within two miles of Chicago river of Lake Michigan and boats are said to have passed over loaded in high water from one to the other, the distance between being a marsh which in high floods is perfectly inundated. The Illinois runs in a s. w. direction about 400 m. and empties into the Mississippi by a mouth 80 rods wide 200 m. above the mouth of the Ohio and 20 above that of the Missouri. The country through which it passes is said to be equal to any other in the west. It receives a number of large rivers on each side, and passes through the Mississippi separates it from the Missouri, on the west; a line parallel with the south end of Lake Michigan, from the northwest territory on the north; it has the Wabash for two hundred and forty miles from its mouth, from Indiana on the east.

The rivers and streams that wash the various parts of this state, are almost innumerable; and to particularize them all, would be tedious to the reader, and a waste of time to the writer. I shall barely mention some of the most noted of them.—The Illinois is the largest that is peculiar to this state. This is a noble river, rising near the south end of Lake Michigan. Its head branches are called the Plein, and Theakakee or Kenkakee. The Plein is navigable within two miles of Chicago river of Lake Michigan, and boats are said to have passed loaded from one to the other at high water, the distance between them, being a marsh and in high floods it is completely inundated. The Illinois runs in a southwest direction for about four hundred miles, and empties in to the Mississippi, by a mouth about four hundred yards wide. The mouth of this river is nearly two hundred miles above the mouth of the Ohio, and twenty above the mouth

a lake called Illinois lake 20 m. long and 5 wide. This river is well calculated for navigation, being of a smooth gentle current, and unbroken by rapids throughout its whole extent. Kaskaskia is the next largest, its course is more southerly, it is about 300 m. long and puts into the Mississippi 100 m. below the Illinois. Fifty m. lower down Auvase empties in: this river and its branches waters a district 70 by 24 m. square. Between the Illinois and Kaskaskia is Wood river, and between Kaskaskia and the
4112 Auvase is the little river Marie. Above the Illinois is Sandbay and Rocky rivers which are large and run nearly west. The Saline (on which is the United State's salt works) 26 m. below the Wabash, Sandy Creek and Cash river fall into the Ohio on the south. Little Wabash, Fox, Embarass, Mascontin, St. Germain and Turtue put into the Wabash as you proceed north before you reach Fort Harrison. Those putting into the Wabash above, were mentioned in the description of Indiana. There are a number of small lakes in this territory, mostly in the north part, and on the American bottom. They all abound with fish and wild fowl."

of the Missouri. The country through which it passes, is said to be the finest in the world, possessing rich alluvion bottom, and on whose banks may be seen fields of corn growing to a luxuriance, that almost astonishes the eye of the beholder—It receives a number of large rivers on each side, and passes a lake called Illinois lake, twenty miles long, and about five broad. This river is well calculated for navigation, being of a smooth and gentle current, and unobstructed by rapids throughout its whole course. Kaskaskia is the next in size and grandeur, but its course is more southerly, and empties into the Mississippi one hundred miles below the Illinois, being about three hundred miles long. Fifty miles lower down the Auvase empties into the Mississippi; this river, and its branches water a district of seventy by twenty-four miles square. Between the Illinois and Kaskaskia is Wood river, and between Kaskaskia and Auvase is the little river Marie. Above the Illinois is Sandbay and Rocky rivers. which are large and deep, and they run almost a due west. On the Saline, twenty-six miles below the Wabash, the Sandy creek and Cash rivers fall into the Ohio on the south.

The Little Wabash, Fox, Embarass, Mascontin, St. Germain, and Fortue rivers, empty into the Wabash as you proceed north, before
4114 you reach Fort Harrison. Those that put into the Wabash above, will be mentioned in my letters to you from Indiana. There are a considerable number of small lakes in this state, most of which are in the north part, and on the American bottom land."

4115 My statement on transcript page 4101 (Abst., 1549) in which I compared Ogden and La Hontan from the point of view of the historical validity or weight of the two accounts, I did not mean to imply, as a reading of the
4116 record seems to, that I would attach equal authority to Ogden's statements contained in his letters that I would attach to La Hontan. I make this distinction. La Hontan's reputation aside from this sixteenth letter is on the whole very good, as Dr. Thwaites has pointed out. La Hontan has been carefully and keenly criticised by many students of history; Ogden has written almost nothing aside from this one volume, upon which we must base our judgment. It has never been subjected, so far as I know, to criticism by historians with the idea of determining its validity or authenticity.

4117 This pamphlet entitled "A Tour Through the Western Country, A. D. 1818 & 1819. By Benjamin Harding, Surveyor. Published for the use of Emigrants. New London: Printed by Samuel Green, for the Author. 1819," comprising 17 pages of text, is one of the sources from which Ogden's letters are drawn. I call attention to the resemblance which exists between Harding's introduction, and certain parts of the preface to Ogden's letters. Ogden begins with the preface in his work of plagiarization. He has not plagiarized literally except as to a certain sentence or possibly a part of a sentence. It is obvious to me, at least, that Ogden's preface is so like the introduction to Harding's
4118 pamphlet that from what I am prepared to show as to the character of Ogden's work as a whole, he had Harding's pamphlet before him and probably consciously

fashioned his own preface after this introduction to Harding.

To make this plain, I read the first paragraph of Ogden's preface (reading):

> "The author of the following pages, having been employed for many years in business which necessarily required him to travel through the principal part of the United States, and having spent much time in the western territory of these states, he was induced to believe that it would be no small benefit to his countrymen to give a general descriptive view of it."

I read from Harding's introduction beginning about the middle of the paragraph (reading):

> "And as the author had been one in assisting to survey, and run lines, to a great portion of that country,
4119 whereby he had a greater opportunity to acquire a knowledge of the same, he was induced to believe it would be no small benefit to his countrymen, as so many were daily moving to those parts and inquiring for information concerning the country, to give a general descriptive view of it."

Reading from Ogden's preface from where I left off reading (reading):

> "The greater part of these letters were originally written to a brother, without the most distant view to their publication; they were generally written in haste, and have gone through very little, and some of them, no alteration from the originals. But such as they are, they are now before the public; and it is most sincerely hoped they will prove, in some small degree, beneficial to those for whom they are particularly designed—the great number of emigrants who are constantly moving to that country. Whether the delineations will be found correct, and the lights and shadows judicious, must be left to the plain, unostentatious observer, and to the acute, fastidious and acrimonious connoiseur."

In connection with this citation he plainly and positively asserts that the greater part of this letters were originally
written to a brother, without the view to their publica-
4120 tion, and were written in haste, and that there has been very little alteration from the originals.

I now read from the first letter of Ogden, page 5 of this volume, to show further the supposed circumstances under which these letters were produced (reading):

"Dear Brother:

After leaving your hospitable mansion, in which, for many years, I had enjoyed the most interrupted tranquility and repose, on a journey to the Western World, it was your request that, from time to time, as occasion might offer, I would lay before you, a brief sketch of my perogrenations in this new and interesting part of our country. I presume your curiosity has, in a considerable degree, been excited by the great number of
4121 scribblers and land speculators, who are swarming our eastern states, and, in very high and eloquent strains, for lucre's sake, representing it as a land flowing with milk and honey." * * *

Omitting a few lines Ogden plunges at once into his narrative as follows (reading):

"I have now arrived at Pittsburgh, a pleasant and flourishing town, where the Alleghany from the north and the Monangahela from the east, united and form the beautiful river Ohio, one of the handsomest streams of water in the known world, as allowed by all travellers, both European and American."

At this point he manifested his skill at appropriating the literary property of others. This passage is a close paragraph of the second paragraph of Harding's Tour, making it plain that the second paragraph of Harding's Tour is the source of this, the first of Ogden's reputed personal observations. I read from Harding's Tour (reading):

"At the head of the Ohio,"—and here there is a footnote which I read as follows: "A name given it by the
4122 natives, signifying 'Beauty.'" (Continuing reading.) "One of the handsomest streams of water in the known world, as allowed by all travellers, both American and European, where the Alleghany from the north, and the Monongahela from the east, form a junction, stands the flourishing town of Pittsburg. At this place there is scarce any mechanical art but what is carried on in its greatest perfection."

Beginning with the sentence immediately followed the formal introduction, "I have now arrived at Pittsburg," and so forth, the letter contains 162 lines. I identify 135 of those as chiefly from Harding's Tour, partly also from Evans' Pedestrious Tour. This is the first of the three letters which Dr. Thwaites has observed constitute the personal observations of Ogden.

What foots up to 12 pages of Ogden is taken from
4123 Harding's pamphlet, which pamphlet contains a total of but 17 pages, but the pages of Ogden do not contain quite as much as the pages of Harding. The second letter begins an account of Ogden's journey from Pittsburg down the Ohio. Thwaites' introduction to Ogden in his "Early Western Travels" comments particularly on that part of the work dealing with the scenery and so forth, along the Ohio.

4124 I read first the opening portion of letter 2 of Ogden, and then a citation from Evans' Pedestrious Tour, page 151, from which it is taken, and ask the Commissioner to arrange the citations in parallel columns.

Having taken the first page of letter 2 from Evans, the second page continuing the description of the Ohio river and the adjoining country contains but thirty lines and these are plagiarized from three different sources, Evans, Miller and Harding.

4126 (The respective passages read by the witness from Ogden and Evans are as follows:)

(Ogden.)

"After remaining at Pittsburgh for three days, during which time, I had an opportunity of witnessing much of their hospitality and kindness, I engaged a passage, on board a boat, to explore the mouth of the River Ohio. And, while I am gliding along on the bosom of this gentle stream, I shall give you some quaint idea of the villages and towns that are situated upon its banks; and the grand and delightful prospect which is everywhere presented to the view of the traveller.

The length of this river is computed to be upwards of eleven hundred miles, by
4127 its sinuosites from Pittsburgh to where it looses itself in the Mississippi, and its average breadth

(Evans.)

"After remaining at Pittsburgh two days, I descended the Ohio for a few miles, and then landed on its western bank. The State of Ohio is situated altogether on the west of the river, and is bounded east by Pennsylvania, north by Lake Erie and Michigan Territory, and west by Indiana. The length of the river is about eleven hundred miles, and its average breadth about one-half of a mile; in some places, however, its width is about twice this distance. The river is, generally, very deep, sufficiently so for the navigation of large ships. Its aspect is placid and clear; and when the water is high, is expansive and beautiful. It contains a great many islands, and is

half a mile; although in some places it is known to be twice that distance. This river is, generally speaking, very deep, sufficiently so for the navigation of large vessels. Its aspect is placid and clear; and when the waters are high, they are expansive and beautiful. It contains a great many Islands and is stored with fish and fowl of almost every kind.—" stored with a variety of fish and fowl."

4125 I ceased to read from Ogden at that point not because he ceased there to plagiarize, but simply to save time. Ogden having taken the first page of letter two from Evans, the second page containing the description of the Ohio river and the adjoining country contains but thirty lines and these are plagiarized from Evans, Miller, and Harding.

Letter 5 on Illinois, contains seven pages, the first 2½ of which are copied bodily with slight variations, from Miller's pamphlet, pages 21 to 22. All the remainder of the 4128 chapter is taken from Harding and Miller, except an eight line paragraph of Ogden, page 46, of one line on page 47, and a 7½ line paragraph on page 50. It is from the foregoing chapter that the section was read into the record by complainant's witness, describing the river system of Illinois. Concerning Brookville, Indiana, I read from Miller, page 21 (reading):

"At the close of the war Brookville contained but 10 or 12 houses. It now (July, 1817) contains upwards of 80 buildings exclusive of shops, stables, and out houses, the greater number of which were built during the last season. The buildings are frame and a great number of them handsomely painted."

Turning to page 68 of Ogden, I read (reading):

"At the close of the war, Brookville contained but 10 or 12 houses; but now (1821) it has 102 buildings, exclusive of shops, stables and out-houses, the greater number of which have been built during the two last seasons. These buildings are framed, and a great number of them are handsomely painted."

4129 The Quixotic Evans, as Dr. Thwaites has designated him, sometimes indulged in philosophic rhapsodies more

or less diverting. Ogden who wrote some years later, was addicted to the same habit. I here read a citation from page 182, of Evans, which I follow with a citation from page 70 of Ogden (reading):

(Evans.)

4131 "The whole creation presents to the human mind the most engaging subjects of contemplation;—subjects which speak to his heart, and eloquently persuade him to love and adore his Heavenly Father. The Scriptures derive from this source moral and relig-
4132 ous illustrations, which are truly impressive; in the 80th Psalm the Diety speaks of his chosen people under the similitude of a vine brought out of Egypt; and on account of transgression, 'The boar ont of the wood doth waste it, and the wild beasts of the field doth devour it.' David, in representing the happiness, security, and comfort of a christian spirit, exclaims, 'the sparrow hath found an house, and the swallow a nest for herself;—even thine altars, O Lord of hosts!' And in speaking of the universal care of Providence, he says, 'He giveth to the beast his food, and to the young ravens which cry.' Jeremiah too, in censuring the Jews for their insensibility and impenitence, de-
4133 clares, 'yea, the stork in the heavens knoweth her appointed times; and

(Ogden.)

"The whole creation presents to the human mind the most engaging subjects of contemplation;—s u b j e c t s which speak to his heart, and eloquently persuade him to love and adore his Heavenly Father. The Scriptures derive from this source moral and religious illustrations, which are truly impressive; in the 80th Psalm the Deity speaks of his chosen people under the similitude of a vine brought out of Egypt; and on account of transgression, 'The boar out of the wood doth waste it, and the wild beasts of the field doth devour it'—David, in representing the happines, security, and comfort of a christian spirit, exclaims, the sparrow has found a house and the swallow a nest for herself; even thine altars, O Lord of hosts! And in speaking of the universal care of Providence, he says, He giveth to the beast food, and to the young ravens which cry. Jeremiah too in censuring the Jews for their insensibility and impenitence, declares, yea the stork in the Heavens knoweth her appointed times; and the turtle, and the crane, and the swallow, observe the time of their

the turtle, and the crane, and the swallow observe the time of their coming; but my people know not the judgment of the Lord! Lastly, how supremely interesting, in view of the innocence of the lamb, is the exclamation, 'Behold the Lamb of God which taketh away the sins of the world!' The Author of the Scriptures is, indeed, the great God of nature; and in his Word, he has employed that wonderful pencil, with which he has garnished the heavens."

coming; but my people know not the judgment of the Lord."

Evans further undertook to describe the opossum. A portion of this description I read from Evans, page 183 (reading):

"It is well known that the opossum, at its birth, is
4134 remarkably small; but the account which I received from an intelligent farmer of Indiana, in relation to this particular, is almost incredible. This account, however, seems to be supported analogically, by the testimony of naturalists. The young of the marmose, a species of opossum, is, when first born, not larger than a bean. This animal has two longitudinal folds of skin, near the thighs, in which her young are comfortably kept until they acquire strength enough to take care of themselves."

4135 Turning now to Ogden, page 71, I read (reading):

"It is well known that the Opossum, at its birth, is remarkably small; but the account which I received from an intelligent farmer, of Indiana, in relation to this particular, is almost incredible. This account, however, seems to be supported, analogically, by the testimony of naturalists. The young of the Marmose, a species of the Opossum, is, when first born, not larger than a bean. This animal has two longitudinal folds of skin, in which her young are comfortably left until they acquire strength enough to take care of themselves."

Ogden has copied Evans' description of the opossum further than I have read. Evans commented on a floating grist mill in use on the Ohio river. I read from Evans, page 165 (reading):

"Whilst on the Ohio, I was pleased with the appearance of the floating grist-mill used on this river. This kind of mill is supported by two boats, and the wheel moves between them. The boats move both up and down the river, and when employment can be obtained, they are placed in the strongest current, near the shore, and
4136 the mill is set in motion. Here there is no tax for ground rent, mill-dam or race."

Ogden, too, was pleasantly aroused by this same spectacle, 3rd letter, page 23 (reading):

"Before I leave this state, although I shall, at some future time, give you a more particular account of it, I will remark one thing; which, at the time, gave me peculiar pleasure; I allude to the floating grist mills which are used in abundance on this river. This kind of mill is supported by two boats, and the wheel, which is the principal part of the machinery, moves between them. These boats move in every direction upon the river, and when employment can be obtained they are generally placed near the edge of it in the strongest current, and the mill is then set in motion."

I now call attention to Ogden's greatest achievement, that of changing a woman into a man. I was at a loss to account for the name Prairie de Rogue, which Ogden ascribes to one of the French villages of the Illinois country, until I came
4137 upon the passage from Harding on page 10, which I read, and then read from Ogden (reading):

(Harding) p. 10.

4138 "Twelve miles to the west of this stands another French village by the name of Prairie-De-Rouge; this likewise appears to
4139 be an ancient town, much decayed. Here I met with but one family Madame Latounte, that semed to have any just idea of the advantages of improvement. She had a daughter who had been sent abroad and received an English education. She could speak the

(Ogden) p. 52.

"Twelve miles to the west of this, stands another French village by the name of Prairie-de-Rogue; this likewise appears to be an ancient town, and fast falling to decay. I found in this place but very few people, who could speak with any degree of facility, the English language. I became acquainted, however, with Mr. Lamoil, who had received his education in France, but had lived in this country for many years, who

English language with a great deal of ease; her mind was very much refined, and her manners greatly improved. This place contains somewhat about one hundred houses. The men appeared hardly to know the use of agriculture, but followed fishing and hunting. They have one cathedral, or place of public worship; their religion is of the Roman Catholic. As they have obtained a grant
4140 from Congress securing to them a tract of land six miles square, and their living so secluded among themselves, it is not likely that they will very soon be brought out of that indolence and superstition, which they are so attached to."

could speak English with some degree of facility; he was the only person, who appeared to have any just idea of the advantages of improvement. He had a daughter who had been sent abroad and received an English education. She could speak the English language with much ease. Her mind was highly refined, and her manners greatly improved. This place contains about one hundred houses. The men here appear to know hardly anything about agriculture, but follow, for a living, hunting and fishing. They have one Cathedral, or place of public worship; their religion is the Roman Catholic. As they have obtained a grant from Congress, securing to them a tract of land six miles square, and their living so retired among themselves, it is not likely that they will very soon be brought out of that indolence, and superstition, to which, at present, they are so rigidly attached."

I have examined the excerpt from Volume 3, Schoolcraft's Archives of Aboriginal Knowledge, page 353, transcript pages 182 to 186, (Abst., 77-79) referred to in Alvord's
4141 direct, in which appears the following at page 186 (reading):

"We left Cahokia on the 4th of May, for Mackinac. My directions were to pass by Chicago, having one barge and one canoe, and to await the arrival of M. Marchisseaux at Little Detroit, in lake Michigan, he having gone by the way of Prairie des Chiens, to terminate his business with the Sauks."

It was referred to by Alvord as being a reference to the

use of the Chicago and Desplaines portage. The article shows that Perrault went from Canada by way of Green Bay and Prairie du Chien to St. Louis; that he returned by way of the Illinois river and Chicago, leaving Cahokia on May 4th, and stopping 14 days on Lake Michigan, reaching Mackinac early in July. There is no indication of Perrault's experience on the Desplaines. This passage must be interpreted, if used at all, in connection with other sources which actually describe the passage of the Desplaines.

4142 Perrault came up in the spring, leaving Cahokia May 4th; presumably the water was higher at this season of the year than at some other seasons. From other sources we know that it was possible to pass up the Desplaines at a time when the water was high. That Perrault actually did pass up the Desplaines must rest on inference. In view of some of the historical sources, it is not a necessary inference, from the mere statement that he was directed to pass by Chicago that he actually passed up the Desplaines. For example, Collot,—I am speaking from memory, speaks of going by the Calumet to Chicago. It is conceivable that one might pass up the Kankakee to the St. Joseph and reach Chicago by that route. I do not assert that this is probable when the details are lacking.

I have examined the excerpt from St. Cosme, Alvord's direct examination, transcript page 112 (Abst., 48), which is from Shea's Early Voyages up and down the Missis-

4143 sippi. St. Cosme was a Canadian, born at Quebec, ordained in 1690, and went at the time which is dealt with in this source on a mission to the western Algonquins. He was a seminary priest of the order which entered in this field of missionary endeavor in the fall of 1698.

He was stationed first at Tamarois, or Cahokia, and then at Natchez; was assassinated about 1702 or 1707. These statements are based on sketches of St. Cosme found in Shea, page 45, and 65 Jesuit Relations, p. 262. In this expedition, St. Cosme, Davion and Montigny, three priests with others left Mackinac September 14th. They went by way of Green Bay and the western side of Lake Michigan, eight canoes, these last four destined for the river of the Miamis, three belonging to the priests and one evidently to Tonty, being destined for the Mississippi river.

4144 On October 7th, they were at Milwaukee, and on the information they got from the Indians, they planned to go up the Root river, there described by the Indian name, which

flows into Lake Michigan near Racine, down the Fox to the Illinois. They found the Root dry and concluded the Fox would be also. Shea, page 51, "Instead of shortening our way, we should have had to make nearly forty leagues of the way as a portage." They were obliged to take the route by way of Chicago. Tonty was the guide and familiar with the Chicago-Desplaines route. The Indians told them they would have to make a portage of nine leagues going by way of the Root and Fox rivers, yet they deliberately planned to go by this way and thought thus to shorten their way to the Mississippi. They rejected the Root and Fox rivers, only on finding the Root river dry, necessitating a portage of nearly forty leagues. This indicates that Tonty expected as a mat-
4145 ter of course to have a longer and more difficult portage by way of Chicago. I mean to say longer and more difficult than the nine league portage, obviously not longer than the forty league portage; in fact from St. Cosme's narrative they had to portage about 17½ leagues down the Desplaines to the Illinois. According to La Source, 15 leagues, the two letters being written independently at different times. On the whole, the two accounts corroborate each other very well in this particular. It appears from the narrative that the water being extremely low, they took only what was necessary for their voyage, to accomplish which they made a cache at Chicago, leaving their goods in charge of Brother Alexander, and planning to come back for it in the spring. This also corroborates the La Source account.

4146 They went down the Illinois and Mississippi to the Acanseas River, 250 leagues below the mouth of the Illinois. Tonty went with them that far, then returned to the Illinois country. Turning to La Source, page 79 Shea and concluding on page 86; La Source was a priest ordained at Quebec, was a member of this expedition, and his letter re-
4147 counts the events of the same expedition as those of Montigny and St. Cosme. It is evidently written considerably later. On page 80, he tells of the further journey down the Mississippi from Acanseas to the Tonicas. Here Davion established his mission. Pages 80-81 described the Tonicas. Page 81, after 8 days they go on to Tolusas, 20 leagues below where Montigny stationed himself for a short time. (See Montigny's letter, page 76, Shea.)

Continuing La Source, page 82, they reached Tolusas January 21st. Montigny and most of the others were sick and

short of food. After describing the Tolusas, Montigny's letter ends. On page 83, on January 27th, they left the Tolusas and returned up the river to the Tonicas, where Davion was stationed. Montigny and St. Cosme resolved to go up together, page 83, "to bring down the things left at Chicago, where Brother Alexander had remained to guard them, because there was no water in the river of the Illinois. We brought only a canoe load of absolute necessities which
4148 we had to carry for a distance of 15 leagues."

This is the basis for my comparison of the statements of St. Cosme and La Source. It appears they had "good cheer" on their return up the Mississippi (reading) p. 83:

"There were some Illinois villages that wished to oppose our voyage, but they gained nothing; we passed on in spite of them and their envy. Mr. de Tonty kindly accompanied our gentlemen as far as the Acanseas. We were a strong party, and going up the Illinois river we came near being plundered by the Miamis. They boasted that they would rob us as we came up the Illinois river. We are not in the humour of letting ourselves be plundered. We are thirty men to defend the river of the Illinois. There are as many people at the Tamarois as at Kebeq. Mr. de St. Cosme is at the Tamarois, which is eight leagues from the Illinois. It is the
4149 largest village that we have seen. There are about 300 cabins there.

We arrived on Maundy Thursday at Chicagou after making thirty leagues by land. It rained during the last two days of our march. Mr. de Montigny was much fatigued and I was no less so."

They reached Chicago on Maundy Thursday, which complainant's witness states is the Thursday before Easter, "after making thirty leagues by land." I infer that this 30 leagues constituted the last lap of the journey they were making. That prior to this they travelled on the river. If this is a valid inference, it follows that they travelled by land from a point approximately 90 miles below Chicago. Montigny returned to Chicago for it is stated he was much fatigued. This page shows that the original plans expressed in St. Cosme's and Montigny's letters written earlier were changed on account of the killing of three Frenchmen and the sickness of the party.

4150 Montigny intends to go back to Taensas and may go to the sea. Page 85 La Source tells of the loss of the

boy on the expedition down the river. He shows the date of the letter to be Maunday Thursday. It was evidently written at Chicago, between that day and Easter Monday.

These three letters were written at different dates; two of them at approximately the same date by the three authors who were engaged on a trip from Mackinac to the lower Mississippi region to establish missions; the time covered in the three letters being September 14th, 1698, to about Easter, 1699. If the three letters are read together, and in the light of or in connection with the others, they are not hard to understand. St. Cosme appears to have written his letter about January 2nd, at the mouth of the Acanseas river. (Shea, p. 74.)

4151 Montigny wrote his on January 2nd at the same place, indicated by the letter itself. La Source wrote his at Chicago about Easter, 1699. From the first two we get an account of what the missionaries did about the time of writing their letters about January 2nd, 1699, and some indication as to what they planned to do. From the last letter, we learn why their plans were modified, and that they returned to the Illinois country and some of them to Chicago. It appears that they passed down the Mississippi to the Acanseas river, having been forced by low water to leave most of their goods at Chicago. They began the establishment of missions, and Montigny planned to go among the Natchez and to the sea, but sickness seized them, and provisions became scarce; they heard news of the killing of three Frenchmen, and Montigny gave up his project for the time being. Near the end of January, Montigny and St. Cosme decided to return to Chicago for goods, and the party came up the Illinois, concluded by making thirty leagues of the journey by land. St. Cosme, I think, stopped at Cahokia; the evidence is not clear.

4152 Montigny and La Source went on to Chicago; it is pointed out, being much fatigued by the march or journey.

Having in mind Thwaites' conclusions as to La Source's account, transcript, 1233 (Abst., 509), and 1069 (Abst., 449), wherein he regards as practically impossible of solution I would say, I believe he has over emphasized the impossibility of making anything out of La Source's account. True, the letter changes abruptly from one topic to another, and the letter as I have already pointed

4153 out, is in places quite confusing, and is not an orderly one. On the whole, however, one may follow it by keep-

ing in mind the facts, as my brief of the contents will indicate. Shea obtained these letters from Parkman and the transcriber evidently performed his work poorly and his errors may not have stopped at proper names, but may account for the confusion, particularly in the paragraph on page 84. (See Shea's comment in footnotes, pages 39, 51, 62, 65, 66 and 73.) Observing then that there are several perplexing things in this letter, and in particular in the paragraph on pages 83, 84. I think it reasonably clear that this para-
4154 graph to which I have just referred continues the account begun near the top of page 83 of the return from the lower Mississippi to Chicago. That it is a reasonable inference that they came up the Illinois river, but (and this is no inference) the last thirty leagues of the journey was made by land.

La Source's letter dove-tails in with those of St. Cosme's and Montigny in so many respects as to furnish presumptive evidence as to the trustworthiness of all three of the letters.

4155 To connect the Root river with the paragraph read by complainant's witness, transcript, p. 113 (Abst., 49), beginning, "Some Indians had led us to suppose that we might ascend by this river," I read the next preceding, page 50 (reading):

> "On the 10th of October, having left Meliwarik early in the morning, we arrived in good season at Kipikawi which is about eight leagues from it. There we parted with Mr. de Vincennes's party."

4156 I read the footnote as follows:

> "I do not find this name of Kipikawi or Kipikuskwi elsewhere. The river is evidently that emptying into the Lake at Racine, and this route was up the Root River and then by a portage across to the Fox or Pishtaka (Bestikwi) River, which they descended to the Illinois. * * *"

4157 I have studied the passage, from an article by John Pattin, referred to by complainant's witness on transcript pages 698-699 (Abst., 289-290) which is taken from 18 Wisconsin Historical Collections, page 146, the sentence beginning: "The other is from Missilimakinac to the Lake Illinois four Leagues, thence one hundred and fifty Leagues on the Lake to the river Chigagou, up the River Chigagou they sail but three Leagues to a Portage of a quarter of a League, then they enter a small lake of a mile, and have another small

Portage to the River Illinois, thence down the same one hundred and thirty Leagues to the Mississippi."

I conclude that this is merely a restatement or paraphrasing so far as it concerns the Chicago and Illinois route, of James Logan's report.

4158 A comparison of the two citations shows such a similarity between them that it seems a fair inference that Pattin's description was drawn from Logan's report.

I call attention to Logan's report as found on transcript page 132 (Abst., 57) (reading):

> "From the Lake Huron they pass by the straight Michillimackinac four leagues, being two in breadth, and of a great depth, to the Lake Illinois; thence 150 leagues on the lake to Fort Miamis, situated on the mouth of the river Chicagoe; from hence came those Indians of the same name, viz: Miamis, who are settled on the forementioned river that runs into Erie.
>
> Up the river Chicagoe they sail but three leagues to a portage of one-fourth of a league; then enter a small lake of about a mile, and have another very small portage, and again another of two miles to the river Illinois; thence down the stream 130 leagues to the Mississippi."

If these two citations are put in juxtaposition, the reason for my conclusion is visible.

4159 Long's report, which comprises some five pages of the National Register, deals with the rivers, the need of proposed canals and roads, of military works, the aspect of the country, trees, soil, etc., and the Indians of the region from the Ohio on the east, and the Mississippi on the west, and from the Ohio on the south to the Milwaukee and Rock rivers, Lake Michigan and Michigan Territory on the north.

I have read the extracts from Schoolcraft read into the record by complainant's witnesses, and examined the context in which they appear, and have noted the estimates of

4160 the authority of Schoolcraft, and deductions drawn from excerpts cited by complainant's witness. On pages 8 and 9 of Schoolcraft's Journey through the central Mississippi Valley, is an account of the purpose of the expedition, or the route, and Schoolcraft's appointment. Pages 12 and 13 give an account of the equipment of the party for the expedition, under the heading of "Mode of Traveling," which points out he used a canoe holding some 8 or 9 men, and very limited

equipment, which is pointed out on page 13. I roughly
4161 estimate that the whole load of this canoe would be from 2,000 to 2,500 pounds, which estimate is based on the following, page 12:

"Mode of Traveling: or rather, as a slight consideration of the nature of our route, will leave the reader to anticipate, of our traveling canoe." (Traveling canoe being italicized.)

4162 "In its dimensions a choice was made between the long and pointed northwest canoe, employed in the fur trade and the light ovate canoe of the lakes, combining a good degree, the strength, the buoyancy, and the velocity, which are the peculiar characteristics of each. And our bark afforded perhaps an equitable standard of comparison of the safety and convenience of this expeditious, and, as we think, pretty mode of voyaging. It was furnished with a small mast and square sail, and an awning of painted cloth, with side curtains to intercept the rain, and mitigate the boat; and contained seats for six men to paddle, and another for a servant and cook, in addition to the space for the steersman, who performs his duties standing."

Our own seats were made by opening a travelling bed upon a light portable floor placed between the center thwarts of the canoe, and so arranged as to serve the double purpose of sitting and reclining;—or rather, so as frequently to keep the body in a state of involuntary accuvation. Our whole amount of personal baggage, beside a camp-bed and a case of books and magazines,
4163 might have been compressed within the compass of a moderate capacious traveling trunk; and our outfit of provisions, and the luggage of the canoe men, were ordered with the same economical view to the capacity of our bark, and the acceleration of its movements.

A linen marque, a few instruments necessary for making observations upon such branches of science as we purposed noticing, the tools and utensils necessary for cooking and encampment, and the requisite gum and wattap for repairs to the canoe, completed the outfit. An oil cloth, which could be spread in a few moments over all, secured the packages against sudden showers, or the effects of waves breaking in. A small ensign was affixed to the stern, giving a national character to the equipment; which it can scarcely be deemed improper

to add, was liberal without being cumbersome, and united the advantages of speed and economy, without wholly sacrificing comfort.

"Let school-taught pride dissemble all it can,
These little things are great to little man.
—Goldsmith."

4164 It appears they came up the Illinois to approximately Starved Rock, pages 318-319, where they found the water too shallow for the canoe, being often less than 4 inches deep. Page 321 (reading):

"Finding the navigation so difficult we determined to relinquish the design of proceeding any further by water," and to go on horseback to Chicago, this being about the 11th or 12th of August, 1821.

On page 328 is an account of the petrified tree near the mouth of the Desplaines. The depth of the water over the rock, as he calls the tree, was commonly little more than 12 inches. The footnote reference here is to Thomas Tousey of Virginia, which I now read (reading):

4165 "Thomas Tousey, Esq., of Virginia, who visited this locality in the autumn of 1822, found nearly the same depth of water in the Desplaines. He writes: 'With your memoir in my hand, we rode up and down the river, till the pursuit was abandoned by the others; while my own anxiety and zeal did not yield until it was discovered. The detached pieces we found covered with twelve to about twenty inches of water, and each of us brake from them as much as we could well bring away."

Schoolcraft says Mr. Tousley visited the locality in the autumn of 1822. The entry from Tousey's journal or letter in Schoolcraft's Journal is of date June 10, 1823. I do not see from a hasty examination when he actually made the journey.

4166 On pages 332-334 of Schoolcraft's volume is a description of the Desplaines, of the rapids in it, and Schoolcraft's comment on the error of thinking that a short canal of eight or ten miles would be sufficient to answer the needs of trade. He points out that some trader's with whom he talked thought it would do to enter the Illinois (Desplaines) at Mount Joliet; observes this would make the portage thirty miles. That his own experience was that he must leave the river far below that point.

As for Schoolcraft as an authority in general, I see no

reason for disagreeing with the witnesses for the United States. In places he is the subject of criticism, just as is the work of every historian. On the whole, he may fairly be regarded as a scientific, careful, scholarly observer. His works have the reputation of constituting high authority for the things with which they deal, and with which it appears in them that Schoolcraft might reasonably be expected to be familiar.

4167 On transcript page 331 (Abst., 154), Schoolcraft speaks about the Illinois-Chicago river, being one of the principal points where the waters of the lakes and the Mississippi interlock. He applies the term "Illinois" to the whole Illinois-Desplaines system; "1. By the Illinois and Chicago Creek (with Lake Michigan)."

It may be correct to say that the waters of the Mississippi communicate with the lakes by these rivers or creeks as he used the term with reference to the Chicago; any inference as to the character of the upper portion of the Illinois river system, that is the Desplaines, should be controlled and construed by Schoolcraft's detailed account given elsewhere, of the character of the stream.

A reference to that account appears at page 542, in connection with Schoolcraft's Journal of Travels in the Central Portion of the Mississippi Valley, and shows that he found it impossible to pass along the Desplaines in a canoe, and that having given up the canoe and journied along the general route of the remainder of the Illinois and Desplaines on horseback, having been along the banks of the Desplaines

4168 for the greater part, but having seen the river itself only seldom, came to the conclusion that the Desplaines was not navigable at that particular season of the year. He pointed out the error of those who thought a canal of eight or ten miles in length would provide a water communication with the Mississippi. Traders whom he met on the plains transporting their goods by means of carts, thought it practicable to enter the river at Mount Joliet; that a canal of thirty miles in length would answer, but Schoolcraft points out that "his own experience" reveals that while such a canal would perfect communication at certain seasons, it would fall far short of the grand purpose.

Therefore, Schoolcraft's conclusions and experience as shown in the volume "Travels in the Central Portion of the Mississippi Valley" prevent any inference from the statement contained in the record, page 331 (Abst., 154) to the ef-

fect that that passage indicates anything as to the character and nature of the use that might be made of the Desplaines river.

4169 His statement that the French used this route for 160 years, was written in 1832, and should be interpreted in harmony with Schoolcraft's statement based on the trip up the Illinois in 1821. It is a reasonable conclusion that they may have used the route without concluding that Schoolcraft implies that the route was used in boats in water all the way. If such an inference be drawn from the latter statement, it would conflict with what he wrote of his trip in 1821. It does not seem probable he would retract a detailed narrative by a mere implication.

As to McLaughlin's conclusion concerning the validity of Schoolcraft's statement of the use of the route for 160 years, I observe, as he pointed out, that Schoolcraft had certain advantages over the modern student. However, the latter has certain more important advantages, as access to greater libraries, collections of historical sources. Tradition or

4170 common repute as handed down by word of mouth does not accurately hand down facts for a period of a century and a half. For a long period, Schoolcraft must depend chiefly on sources other than oral, therefore, his conclusion is valid or not according to the completeness of the sources at command, and the skill which he evinces in using them. The statement of a recognized modern authority would properly far outweigh Schoolcraft from the point of view of validity as an authority.

I have examined Tousey and the letter referred to by Schoolcraft, mentioned by me in that connection.

4171 Tousey, a Virginian, passed through the Illinois country in 1822. His letter to Schoolcraft appearing in Schoolcraft's Thirty Year's with the Indian Tribes, pages 179 and 180, expresses surprise at the advantages of the northwest, and confidence in the future of this region. Concerning the Desplaines route, and the projected canal, he regards Green Bay and Chicago, particularly the latter as two very important positions. For many years he anxiously desired to see the country between Chicago and Illinois rivers. Page 180, (reading):

> "Where it has generally been ignorantly supposed that only a small sum would be wanting to open a communication between them. By traveling on horse back through the country, and down the Illinois, I have con-

ceived a different and more exalted opinion of this communication, and of the country, than I had before, while I am convinced that it will be attended with a much greater expense to open it than I had supposed."

Points out he found fossil tree with considerable labor and difficulty (reading):

"This I anticipated from the commonly reputed opin-
4172 ion of the uncommon height of the water. With your memoir in my hand, we rode up and down the waters till the pursuit was abandoned by the others, while my own curiosity and zeal did not yield until it was discovered. The detached pieces were covered with twelve to twenty inches of water, and each of us broke from them as much as we could well bring away."

The letter is written by an optimist, not only concerning the Northwest, but the Chicago-Illinois canal communication. His prejudice or unconscious bias would naturally be in favor of the canal. Tousey may reasonably be considered as a witness against his own interest. I regard his letter, therefore, as evidence of considerable importance in opposition to the ignorant opinion, as he puts it, as to the ease of opening a canal between the Chicago and the Illinois. Tousey's visit was in the autumn of 1822. The letter states that "from the reputed opinion, the water was uncommonly high," yet he found over the petrified tree the depth
4173 was from 12 to 20 inches, the same as Schoolcraft found on his journey in 1821.

I have examined the letter from Prideaux Selby to Peter Russel, volume 18, Wisconsin Historical Collections, page 458, referred to by Alvord, particularly the passage beginning, transcript 214-15 (Abst., 91-92):

"But that the water communication by the Ouisconsin to Lake Michigan, (except an inconsiderable carrying place between that and Fox river) opens an easy passage for the introduction of troops and all manner of stores either by way of Chicago or Missilimackinac.

That the route by the Illinois river tho' much nearer, does not afford such advantages for bringing forward supplies as the Ouisconsin, and altho' in the Spring of the Year, the waters are always high by the dissolving of the Snow and frequent rains at that season, yet it is presumed the swelling of the Illinois may have subsided before an army could be in readiness to take the advantage of that circumstance and it must be observed

also that there are many interruptions on this communication such as Rapids and Shallow waters. The Ouisconsin therefore appears their most (best) route as it is the easiest and most secret as well from its distance from any body of Traders as from the little inter-
4174 course we have with the Indians inhabiting that part of the Country."

That letter points out that the Spanish cannot come by way of the Ohio unless the people of Kentucky and Ohio join with them. Two routes therefore remain, the Fox-Wisconsin, and the Illinoish route. The former is preferable, although the Illinois is much nearer, because it affords greater advantages for bringing supplies. The Illinois is shown as high in the spring but it is supposed it will have subsided before an army can take advantage of it, and there are many interruptions on this communication in the way of rapids and shallow waters, and might be supposed to abound most in the upper Illinois, which supposition is not out of harmony with the knowledge we have of the nature of the Desplaines.

The writer concludes that it is enough to lead to the rejection of the Illinois as a route of defense. The impli-
4175 cation there may be from this letter as to passing boats along the Desplaines would be rather against than in favor of the possibility, except in time of spring flood, which as he points out is so short he assumes it will have passed away before an army can take advantage of it, agreeing in this observation with what La Salle has said concerning the route. The letter is dated January 23, 1799.

I am familiar with the passage from Warden's History of the United States, published in 1819, referred to by Alvord at transcript page 272, the passage appearing at transcript pages 273-74 (Abst., 124). Warden cites as authority for his account of the Illinois and Chicago rivers the letters of Long and Hutchins' Topographical Description, page 42. A comparison of Warden's account with these sources, shows that he has taken a considerable portion of it from Long, and
4176 one statement apparently from page 42 of Hutchins, the one as to the portage being not over four miles long. Whatever weight attaches to Hutchins and Long, attaches to Warden, if he has faithfully reproduced their statements. That is, Warden does not constitute additional authority on the Illinois river and the Illinois-Chicago route. Warden's statements about navigability of the Illinois need careful scrutiny. In volume 1, page 121, he says that the

Illinois "affords an uninterrupted navigation of 230 miles for large boats and for small ones for a distance of 460 miles, where it approaches Lake Michigan."

In volume 3, page 48, he says the Illinois "is boatable to the Little Rock, sixty miles from the forks or extreme branches, and, 270 from its outlet." The distinction between "boatable" and "navigable" is not apparent, and I assume as a probable explanation that he overlooked the fact he had made a conflicting statement about the same matter in the first volume.

4177 He further states, Volume 3, page 48:

> "By the channel of the Chicago or Calumet river, it furnishes a water communication with Lake Michigan, with only two portages, the longest of which does not exceed four miles."

His authority for this is Hutchins' Topographical Description, page 42. Evidently, Warden confuses the Calumet and Chicago rivers, assigning the portage to the two indifferently. He says:

> "By the channel of the Chicago or Calumet river it furnishes a water connection with Lake Michigan."

To compare Warden's figures with modern figures, I use the Century Dictionary, Volume 9, and select the rivers most readily found therein which appear in Warden.

First, as to the Illinois river; Warden, Volume 1, page 121 —and I give the substance of these statements without
4178 pretending to quote literally—Navigable for large boats 230 miles; for small boats 460 miles.

Century Dictionary, Volume 9, page 525, Navigable 245 miles.

Second, the Iowa river; Warden, Volume 1, page 126, Navigable 300 miles.

Century Dictionary, Volume 9, page 838, Navigable 80 miles.

Third: Racoon river; Warden, Volume 1, page 127, Navigable some hundred miles.

Century Dictionary, Volume 9, Length 175 miles; no navigability stated at all.

Fourth, the Minnesota river; Warden Volume 1, page 125, Navigable 400 miles.

Century Dictionary, Volume 9, page 689, no Navigability stated.

Fifth, Des Moines river; Warden, Volume 1, page 127, Navigable 450 miles.

Century Dictionary, Volume 9, states the length from the forks in Humboldt County as 300 miles. States further that it is navigable to the city of Des Moines.

Without knowing the exact figures, I know as a matter of fact, the Des Moines is a considerable distance below the forks of the river, so that the difference would be considerably more than the 150 miles contained in the two sets of figures. Either Warden's statements are not to be relied on as accurate, or he has attached a different significance to the term "navigation" than that in view when the statements were made up for the dictionary. I presume, both of these alternatives have some measure of truth in them, and that Warden based the distances on estimates, and by "navigation" means mere canoe navigation. Warden usually gives authorities for his statements, so he escapes responsibility for errors. The two sources he gives for his account of the Chicago and Illinois rivers are Hutchins and Long. His repretition of their statements adds nothing to their original force.

Warden uses the term "navigable" and makes state-
4180 ments regarding navigability of streams in what may be described as a loose, inaccurate fashion.

Motion to strike out references to Century Dictionary. Not shown to be a work of known standing and accuracy.

The WITNESS (continuing): I have considered Winsor's Narrative and Critical History, Volume 5, page 7, pages 224, referred to at transcript pages 352-353 (Abst., 165), the passage reading:

"Three of these were especially used,—one by way of Lake Erie, the Maumee, and the Wabash, and then down the Ohio; another by way of Lake Michigan, the Chi-
4181 cago river, a portage to the Illinois, and down that river;"

Also the passage in Volume 4 where he speaks of the principal portages by which passage was early made by canoes, and names:

"2. By the Chicago river, at the southwest of Lake Michigan to the Illinois, thence to the Mississippi."

These passages speak of portages from Lake Michigan to the Illinois. They state nothing as to the Desplaines river. I think it a fair inference that mention of the Desplaines was omitted because the writer did not care to indicate specifically the length of the portage made by early travelers, possibly

because it was evident or known to the writer that sometimes the portage was to the modern Illinois.

Motion to strike out; conclusion of witness.

4182 The WITNESS (continuing): With reference to the standing of Hinsdale's Old Northwest, referred to by complainant's witness, transcript page 355 (Abst., 166), I observe that the characterization is too generous to Hinsdale. If sufficient emphasis be put on the adjective "secondary" in Alvord's statement, perhaps no issue need be taken with reference to this estimate. To call attention to Carter's estimate about this, and of another of Hinsdale's works, I read from Carter's Critical Bibliography under the sections "Special and Sectional Treatises," page 196, (reading):

"Hinsdale, B. A., The Old Northwest. New York, York, 1888—Not based on original research. Very uncritical.

Hinsdale, B. A. 'The Western Land Policy of the British Government from 1763 to 1775,' in Ohio Archaeological and Historical Quarterly. Columbus, Dec. 1887,—Uncritical and unreliable."

4183 However, with respect to this particular citation from Hinsdale, so far as this is concerned, I see no reason for taking issue with Alvord's characterization for it may perhaps be a tribute to his caution and care as a historian that in speaking of the Chicago-Illinois route of travel, he avoids making any mention of the Desplaines. Referring to 16 Wisconsin Historical Collections, page 332, Document on the Military Preparations against the Foxes, appearing at transcript pages 121-123 (Abst., 52-53), concluding:

"It would also be very useful to establish a post at Chicagou, to facilitate access to the Illinois and the Miamis, and to keep those nations in our interests."

I would say this document shows there was travel between the lower Illinois and Lake Michigan. Do not see that it indicates anything directly as to the use of the Desplaines.

Turning to Volume 16, Wisconsin Historical Collections, page 372, referred to by Alvord transcript 124 (Abst., 54), the citation appearing at transcript page 125 (Abst., 54):

"The quicapoux and the mascoutins are not far from chicagou, it may be fifty Leagues distant. When they
4184 wish to go destroit or the St. Josephe River they have to pass by way of chicagou."

Also the footnote by Thwaites, transcript page 126 (Abst., 54), beginning: "The St. Joseph river formed, with the Kan-

kakee," etc. This document was written in 1718 on 1717. It gives a report on the whole region from Canada to the Mississippi. Report is anonymous, but endorsed. Page 376: "Furnished by Monsieur de Sabrevois in 1718. 6 Canada." Not probable that writer has first-hand knowledge of the whole region. Reference is so indefinite as to amount to very little one way or another.

4185 Have examined Woodruff's History of Will County, and the excerpts referred to by Alvord at transcript page 338 (Abst., 158). It is a county history. The portion read from pages 607 and 608 of Woodruff is not by Woodruff himself, so his reputation as a historian, to which the witness for complainant testified has no bearing on the authority of this citation. Since the statement about steamboats carrying heavy articles regularly down the Kankakee and up the Desplaines to Chicago in 1878 is evidently untrue, and it seems a fair presumption that the writers must or should have been aware of this; I think no weight whatever should be given to an anonymous statement or statements by the writer or writers about a practice fifty years earlier, especially since it conflicts with other and better evidence in this case.

Woodruff himself in his pamphlet entitled "Forty Years Ago," page 66, the second of a series of lectures delivered in 1874 on the history of Joliet and Will County, makes statements that if true render the one here so improbable to make it impossible for one to accept. The substance of

4186 Woodruff's article states that the opening of the canal meant a new era in the history of Joliet and vicinity; that hitherto goods had been transported from Chicago

4187 chiefly by ox teams drawing the old Pennsylvania canvas covered wagons. He points out that a stage route between Chicago and Ottawa by way of Plainfield was established by January, 1834; by 1838 or 1839 the route was changed so as to go from Ottawa to Chicago directly up the west side of the river. That is, of the Illinois and Desplaines, leaving Plainfield out in the cold. That it was a tedious ride from Joliet to Chicago, requiring a day, sometimes considerable of the night.

In view of this, it is my opinion it is not to be believed that all this time the river was navigable for boats carrying 14 tons of grain in addition to the hams and the parties navigating the boats, and used for farm produce generally as one would infer from the statement in Woodruff, page 607.

If this was being done, and so practicable, the question arises why the tedious trip along the river banks by stage coach and why were the goods from Chicago brought chiefly overland to Joliet in wagons?

4188 COUNSEL FOR COMPLAINANT. I admit as to the passage beginning on transcript page 341 (Abst., 159), which reads: "At present, small steamers owned by Messrs. Small, of Wilmington, and Stephen F. Hanford, of Warner's Landing, ply regularly between these points and Chicago"—that these steamers made use of the aqueduct and the Illinois and Michigan canal and did not enter the Desplaines river, except where the Illinois and Michigan canal was coincident with the river at Joliet in the upper and lower basins. The very point is made in the deposition of Mr. W. W. Stephens which we have already offered in this case. I do not admit that the balance of the passage read from Woodruff's History does not apply to the Desplaines. We contend that it does.

4189 The WITNESS (continuing): Coming now to the question of cartography. The standard map makers of the early period never visited America. They relied on reports of those who had done so. Explorers were often confused as to the geography of the region they traversed, and sometimes resorted to conjecture or theory to piece out their actual observations, which conjecture and confusion is reflected in the maps of the early period. Cartographers sometimes resorted to conjecture when the explorer had not. Bellin,

4190 one of the better French map makers of his time followed out certain notions he had conceived of the hydrography of the region in question, in 1755 connected Lake Winnipeg with the Mississippi river by a channel which he called the Riviere Rouge. He provided waterways leading from Lake Winnepeg into Hudson Bay and to the "Sea of the West." In this connection, I cite Winsor, Mississippi Basin, pages 204 to 206, and Bellin's Map of North America, 1755. No. 23 of the Chicago Historical Society Library Collections.

Which said map was thereupon offered in evidence.

(For copy of said Exhibit see Appendix, page .....)

The same error was copied by the English geographer, John Rocque, in a map published as late as 1761, No. 28, C. H. S. Collections. (See Trans., 4205; Abst., 1584. This map shows the Chicago river quite accurately, while for the Desplaines is shown an insignificant and un-named stream lying a considerable distance to the southwest of Chicago.

4191 A passage from the Illinois to Lake Michigan by this route would necessitate a portage of a good many miles.

4192 An instance of wrong interpretation by map makers of the reports of explorers is furnished by Winsor. "Mississippi Basin," page 78 (reading):

> "It shows how diverse interpretations could be put upon the same reports, when Delisle is always correct in making the Ohio and Wabash confluent streams, while DeFer puts them down as parallel affluents of the Mississippi."

Delisle and DeFer are the same persons who have been referred to by complainant's witnesses. Delisle was one of the greatest cartographers of his day, noted for his carefulness and insight; yet an error of his which later caused much international trouble will show how the best and most conscientious map maker could be led astray. In his map of 1703 (No. 12, C. H. S. Coll.), of the upper Mississippi river, he relied on the reports of Duluth, Perrot and LeSeur, who gathered their information from the Indians. He put the source of the Mississippi in latitude 49 degrees, which error was retained by map makers for almost a century, and led the negotiations of the Treaty of 1783 astray, necessitating an-

4193 other treaty between United States and Great Britain to straighten out our northwestern boundary.

Whereupon said map was offered in evidence.

(For copy of said exhibit see appendix, page .....)

The error was repeated by DeFer (for copy of said map see appendix, page .....), and improved upon by other contemporary cartographers who carried the source of the Mississippi as high as 54 or 55 degrees. Winsor says, Mississippi Basin, page 78:

> "They had about as little warrant for this as the French traders wandering among the Upper Sioux had when they detected Chinese sounds in the savage gutterals."

The backward state of geographical knowledge of America, is shown by a statement of William Douglass, made in 1729, to the effect that there was not a map of New England in existence but what was intolerably and grossly erroneous.

Douglass lived at Boston, wrote a series of letters to Cad-

4194 walader Colden of New York, between 1720 and 1736. "Collections of the Massachusetts Historical Society. Vol. II. Of the Fourth Series. Boston: Published For The Society, by Crosby, Nichols and Company, 1854." This

is one of the old and important historical societies of America, numbering in its membership many of America's leading historians, among them, Justin Winsor. The letters reveal a writer of intelligence, scholarly, of scientific tastes and insight. He writes, September 14, 1729, of Colden's project of making a map of North America, and proffers suggestions as to method of procedure. He says, pages 185-186 of the volume (reading):

> "It is with pleasure I understand that you incline to oblige the World with a correct map of North America. I am sorry that it is not in my power to contribute towards it by sending you a good map of the Provinces of New England; there is not one extant but what is intolerably and grossly erroneous. I have at times (with a design of learning the country) travelled the
> 4195 greatest part of our four Colonies of Massachusetts Bay, Connecticut, Rhole Island, and New Hampshire, but cannot pretend to reduce them to an exact plan; I may however send you some hints which may enable you to make the maps far more exact than any hitherto published."

I observe that if such was the state of things in New England, which had been settled for over a century, how much was likely to be known in Europe of the geographical details of the Illinois country and the Chicago-Desplaines route.

Delisle, the French cartographer, in a map dated 1700, represents the Wisconsin river as one continuous waterway, connecting Green Bay with the Mississippi. This was 27 years atfer Marquette and Joliet's expedition, and many another French explorer had doubtless in the meantime gone between Green Bay and the Mississippi.

Delisle's map of 1703 shows the present Chicago river quite accurately so far as the south branch is concerned with the modern name applied.

4196 The Desplaines does not appear on the map. The Illinois runs a considerable distance to the south of Lake Michigan, so that a passage from the Illinois to the lake would necessitate a considerable portage to approximately the mouth of the modern Desplaines. The Wabash and Ohio appear as one and the same river. Delisle's map of June, 1718, represents the Chicago and the Desplaines with considerable accuracy. Extends the source of the Kankakee too far to the northeast; represents the Rock river as flowing due

west to its mouth, and puts the name "Chicagou" on Desplaines river, the modern Chicago river being represented, but unnamed.

Whereupon counsel for Defendant requested that the record show the fact that each and all the maps as referred to by the witness were present, and presented to and referred to by counsel for complainant.

As late as 1755, Vander Aa, a Dutch cartographer, undertook to combine the features of these various maps by Delisle. He shows the Fox-Wisconsin as one continuous water route, and gives it the name belonging to the first river, the Reynards. This map is found in Winsor, page 424-425. It
4197 also shows the river Longue of LaHontan. Old errors died hard with cartographers.

Whereupon said map was offered in evidence.

(For copy of said Exhibit see Appendix, page .....)

A map by Janvier in 1762 repeats Delisle's mistake of 1700 in representing one continuous waterway connecting Green Bay with the Mississippi. Map shows both North America and South America, and does not go into much detail. It is No. 29, of the C. H. S. Collections.

Whereupon said map was offered in evidence.

(For copy of Exhibit see Appendix, page .....)

Janvier is a more detailed map of North America in 1755, represents this feature with a fair degree of accuracy. C. H. S. map, No. 29, is small and drawn on a small scale.

4198 COUNSEL FOR COMPLAINANT. Our objection to this as incompetent, irrelevant and immaterial, applies to all these maps, especially in view of the fact that they are not offered in evidence.

COUNSEL FOR DEFENDANT. Then we may cumber the record with them after all.

4199 The WITNESS (continuing). At transcript page 4181 (Abst., 1576). I spoke of the selections referred to as written by Justin Winsor, which was not strictly correct. One was written by Winsor, and the other by Andrew McFarland Davis, of the American Antiquarian Society. It does not change my testimony materially, as complainant's witnesses have shown, transcript p. 352 (Abst., 165) that Winsor had general oversight of the whole work which was issued under his authority.

4200 Returning to the subject of cartography: Gerard Von Keulen's map, of 1720, Amsterdam, shows the Illinois river rising in what now constitutes either the region of

southeastern Michigan or northeastern Indiana. The Chicagou is a branch if the Illinois lying in northern Indiana, while to the east and southeast of Lake Michigan Chicagou, a place, is located approximately in the vicinity of the modern Ft. Wayne. There is also a river unnamed but corresponding to some extent at least with the modern Chicago river, this being near the southern end of Lake Michigan on the western side, flowing apparently almost due north; the forks, the point where the two branches of the Chicago river come together, being placed a considerable distance from the lake. There is an Indian village indicated here, and the
4201 name les Checagou. The words appear approximately at a point to the southwest of Lake Michigan, the letters stretching across the map for some little distance, and the end of the word Checagou being about the middle point from east to west at the southern end of Lake Michigan.

A stream which may be taken as standing for the modern Desplaines is shown on the map, flowing in a general southeasterly rather than southwesterly direction, more to the south than to the east, however.

On the river of the Illinois, which is designated by the French name, at a point almost due south of the village which is labeled "les Checagou," and at the branch of the river which I take to correspond to the modern Chicago river, is found, "The lac ou Isle Pimetoui" corresponding as I take it to the modern lake Peoria; on this lake is indicated a fort designated "Fort Lewis, formerly called Fort Creve-
4202 coueur." The French inscription as it stands on the fort: "Fort Louis Appele cy davant, or devant"—"Fort Creve Couer."

The map maker evidently considered Fort Louis and Fort Creve Couer as being one and the same fort. Somewhat to the north of the western side of Lake Michigan another river is labeled, "Riv. Chokagou." I note the portage between the Fox and Wisconsin rivers, using those names in the modern sense. Also a portage between the river labeled "de Checagou" and located, as I pointed out somewhere in northern Indiana; and another stream which evidently stands for the Wabash, the portage being labeled: "Portage Pour Entre dans Ouabache."

4203 A portage labeled "Portage de St. Jerome, or Jereme" connects with the stream running into Lake Erie. The river indicated as the Miamis flowing in a northwesterly

direction empties into Lake Michigan a considerable distance above the southern end on the eastern side, where a fort is indicated by the inscription: "Fort de Miamis." In a general way this river corresponds with the modern St. Joseph.

The portage labeled "Portage de Miamis" appears between the source of this river and the western end of Lake Erie.

4204 There is no portage marked between the Illinois or the stream flowing southeast that I have pointed out may have been intended for the Desplaines, and Lake Michigan. The dotted line which I cannot explain, runs generally all over the map. Evidently it does not indicate a portage. A portion of the dotted line begins on the Mississippi and runs north of the Illinois, and reaches Lake Michigan at the little stream running into Lake Michigan, and generally corresponding to the Chicago river. The stream flows into what is apparently the Mississippi, called the River St. Louis or Mississippi, which is marked "The River of the Wabash," or the French for that; that is apparently the Ohio.

4205 There was a time when the relation between the Wabash and the Ohio rivers was very much confused in the minds of cartographers. I presume, the southernmost of the two streams shown here which is labeled, River of Ouabachs or Akansea Sepi, should be taken for the Ohio. South of the southernmost of those rivers I find a river having upon it Petit Villages des Chicachas.

Whereupon said Von Keulen map of 1720 was offered in evidence. (For copy of said Exhibit, see appendix, page .....)

John Rocque's map of apparently 1761, No. 28 C. H. S. Collection has Fort Checagou on a river approximately where the modern city is. The river is unnamed. The Illinois river lies far to the south of Lake Michigan. What apparently corresponds to the modern Desplaines appears as a rudimentary steram rising a considerable distance to the southwest of the extreme southern end of Lake Michigan. The passage from what I take to be the Chicago river to the Illinois would necessitate a portage of a good many miles.

4206 "Fort Checagou" lies to the west of the southern end of Lake Michigan; the last letter ending approximately where the beginning of the north branch of this river appears. What I take to be the designation of the fort, lies to the south and east of the mouth of the stream, which with reference to the lake itself would be immediately to the south

of a line drawn north and south through the western portion of Lake Michigan. The mary which appears opposite the word "Fort Checagou" is the same designation or mark which appears opposite Fort Detroit and Fort St. Joseph. The western side of Lake Michigan is not a straight line as
4207 shown on this map. My statement as to the line drawn north and south is an effort on my part to indicate approximately the location of this character which seems to designate the fort.

Whereupon said map was offered in evidence.

(For copy of said Exhibits, see appendix, page .....)

The following maps among others, indicate the Chicago river at another place than the modern Chicago river. Delisle's map of 1718, being No. 15 of the C. H. S. Collections, indicates the Desplaines as the Chicago.

Whereupon said map was offered in evidence.

(For copy of said Exhibit, see appendix, page .....)

Danville's map of 1755, being number 22 of the C. H. S. Collections, the same indication.

Whereupon said map was offered in evidence.

(For copy of said Exhibit, see appendix, page .....)

This was reproduced in 1756 by the heirs of Homann, being No. 27 C. H. S. Collections.

Whereupon said map was offered in evidence.

(For copy of said Exhibit, see appendix, page .....)

No. 30 of the C. H. S. Collections, the date of which the cataloguer apparently has put as 1763, designates what I take to be the modern Desplaines river, the Illinois or Chicagou R.

4208 This map cannot be earlier than 1763 and is by Eman Bowen, Geographer to his Majesty, and John Gibson, engraver.

Whereupon said map was offered in evidence.

(For copy of said Exhibit, see appendix, page .....)

Sr. le Rouge' map of 1755, labeled "Canada et Lousiane" shows what I take to be the modern Desplaines with the designation "Chicagou R."

Wheerupon said map was offered in evidence.

(For copy of said Exhibit, see appendix, page .....)

Sr. D'Anville's map of North America which indicates it was published in 1746, or later, I suggest that it is based on one originally published in 1746, and has been corrected or added to in certain respects. It shows at the southwestern corner of Lake Michigan, what may be probably fairly taken

as representing the modern Chicago river; further, a river flowing into the Illinois which apparently stands for the Desplaines, which is labeled "R. de Chicagou."

Whereupon said map was offered in evidence.

(For copy of said Exhibit, see appendix, page .....)

In Adair's History of the American Indians is printed a map which Winsor has reproduced in his Mississippi Basin, pages 262-263. I find the designation Chicagou R. on a
4209 river I take to stand for the modern Desplaines, though have made no careful study of it. This map in this particular portion seems to resemble the one just cited, D'Anville's map of 1746.

Whereupon said map was offered in evidence.

(For copy of said Exhibit, see appendix, page .....)

"The United States of North America with the British Territories and those of Spain, according to the Treaty of 1784, engraved by William Faden, 1796" shows a river corresponding with a fair degree of accuracy to the modern Chicago river, with no name indicated. Written in the southern end of Lake Michigan apparently as intended to apply to the mouth of this river, is the name Chikagou. I suppose this is intended as a place designation, though there is nothing further to indicate what the map maker's intent was. To the west and southwest of Lake Michigan is a river I take to be the same as the modern Desplaines, labeled "Chikagou R."

4210 There are portages on the map, though none is shown at Chicago. There is one near the source of the St. Joseph river, also near the source of the Kankakee and Wabash, is the word "portage," which applies to the portage between the St. Joseph and the Kankakee; possibly, to a portage between the St. Joseph and the Wabash.

A portage appears between what is labeled R. Miami of the lake and the Wabash river. There is a portage between the G. Miami river and a northeasterly flowing unnamed river that enters Lake Erie near its western end on the southern side. It is designated "Portage eight miles." Another
4211 portage in that vicinity, I am not certain between what rivers, is labeled "Portage nine miles." There is a portage between what is designated as the Copper Mine branch of the river St. Croix, and a river flowing into Lake Superior near the western end on the southern side labeled Godard R.

4212 I see no portage at the Fox-Wisconsin. All but one of these maps belong to the Chicago Historical Society Library. Eaden's map just introduced or referred to belongs to the Lewis Institute library.

Whereupon said Eaden's map of 1796 was offered in evidence.

(For copy of said Exhibit, see appendix, page .....)

I next refer to Homann's map entitled, "Amplissimae Regionis Mississippi," etc., date uncertain. Winsor in his Narrative and Critical History, Vol. 5, page 81, puts the date as about 1730. A stream I take to correspond to Modern Desplaines, labeled "Chicago River." The word printed in the Lake Michigan near the southern end, I read "Chigagou." Do not know what its further significance may be. I see no portage betewen the stream labeled "Chicago River" and the stream appearing where the Chicago now is.

4213 A portage appears between the head of the Illinois river and a river to the east that runs into Lake Erie, which I would consider, though apparently being between the headwaters of these two rivers.

There is another portage apparently between the same streams. The portage that appears between the streams at the southeastern part of Lake Michigan ("The Lake of the Illinois") and the Illinois river. There is an indication of a portage between the Fox and the Wisconsin, and another at the eastern end of Lake Erie and some stream south of it.

Whereupon said map was offered in evidence.

(For copy of said Exhibit, see appendix, page .....)

4214 According to Winsor, Mississippi Basin, pages 271-274, the London Magazine published a map in February, 1760, which represents the Ohio river as the Mississippi river. Page 271 (reading):

> "Note. The map on the two following pages is from the London Magazine, Feb. 1760. It was engraved by T. Kitchen, 'from an Indian draught.' The river called the 'Mississippi is really the Ohio, and its two affluents are the Tennessee ('a branch of the Mississippi') and the Cumberland (Cherokees or Hogoghegwee R.'). It illustrates an account of Gov. Littleton's expedition brought 'by the last ship from South Carolina.'"

The English map makers were less well informed than the French. Winsor expresses this, Mississippi Basin, page 163, where he shows that Colden

> "hoped by this publication (New York, 1727) to instruct those English statesmen who had shown supreme ignorance of American geography, in contrast to the enlightened apprehensions of their French rivals. The difference between them was naturally much the same as that which Delisle with his care, and Senex and Moll with their wild conjectures, had made manifest in their respective maps.

4215 There seemed sometimes in this application of intellectual discernment in American matters, a predetermined purpose on the part of the insular English to go wrong if possible."

It was agreed between counsel, that counsel for the government may reserve its right to object to the use of any of these maps, or any testimony based on them, until it had the opportunity to go over them and check them up.

4216 The WITNESS (continuing). Having examined the DeFer map referred to by Alvord, transcript p. 120 (Abst., 52), where he said DeFer was one of the best cartographers of his day, and one of the early geographers to work out details of western maps. DeFer was not superior to Delisle, if indeed his equal, yet, DeLisle in his map of 1703 (See Trans., 4192; Abst., 1580; Appendix .....), No. 12 of C. H. S. Collections, shows the Illinois river as reaching far around the source of the St. Joseph, with no Desplaines indicated. The portage from Chicago to the Illinois would therefore have a length of many miles according to this map.

4217 DeFer had no better reports than Delisle and probably knew no more about the region in question. That DeFer is sometimes led astray is shown by the fact that he adopted the Long River story of Lahontan, published in 1703; that he represented the Wabash and Ohio rivers as parallel, affluent streams flowing into the Mississippi while Delisle, according to Winsor, using the same reports, represented them correctly. DeFer's map, transcript p. 120 (Abst., 52; Appendix, ...), represented inaccurately the geographical features at the southern end of Lake Michigan. I conclude it is improbable that DeFer in 1705 knew anything more detailed

or definite about the Illinois-Chicago route than did Delisle.

4218 Having examined the map entitled "Carte Particuliere du Fleuve Saint Louis," referred to by Alvord, transcript p. 118 (Abst., 51; Appendix, ...), stating that it does not indicate on its face either the date or the person who made it, but from general knowledge of maps of this time, must have been made about the year 1700 or before. This map was printed in the Atlas of H. A. Chatelain, the title page being:

> "Atlas historique, ou Nouvelle introduction a l'histoire, a la Chronologie & a la geographie ancienne & moderne * * * par mr. C. * * * (anon) avec das dissertions sur l'histoire de chaque etat, par m. (Nicolas) Gueudeville. 7 v. fol. Amsterdam, F. l'Honore & Chatelain, 1705-20."

The second edition of this atlas was published, as shown by Phillip's list of atlases between 1732 and 1739. The particular volume in which this map occurs was first published in 1719, and the second edition in 1732.

4219 Complainant's witness not far astray in location of map in point of time, for the map on which this is based is Lahontan's map of 1703, in Thwaites' Lahontan, Volume 1, opposite page 156 (Abst., 382; Appendix .....). I say it is based on that map because of evident similarity of the two maps, which ocular examination of the two maps shows fully.

4220 The boundaries of the country included in the two maps practically the same. The water connection between Lake Superior and Lake Winnipeg, which does not in fact exist, is shown on the two maps in practically the same manner. The Lahontan map, as published, is in English. The inscriptions are in English. The names and other inscriptions on the carte particuliere are the same or French translations of the names appearing on the Lahontan map of 1703. Have not verified this with respect to every name but did so to sufficient extent to lead to the conclusion stated. I call attention to the inscription of the Lahontan map placed below the Illinois river and extending out in the direction of Lake Erie, which reads:

> "This faint line represents the way that the Illinois marched through this tract of land to make war against the Iroquois, the same being the passage of the Iro-

quois in their incursions upon the other savages as far as the Mississippi."

4221 Turning to the carte particuliere, I find in French a translation of the same inscription, which reads (reading):

"Ces limites sont justement la route que les ilinois oumamis et autres sauvages tiennent allant faire la guerre aux yroquois par terre, de meme celle que les yroquois suivent pour aller porter la guerre ches les nations sauvages les plus eloignees jusque au de la du Missisipi."

As to the portion of this map pertinent to the nature of the water connection between the lower end of Lake Michigan and Mississippi, the representation of the Illinois river on the two maps is so similar as to make it unquestionable that one is a copy of the other. The representation of the lower end of Lake Michigan not exactly the same on the two maps, but difference insufficient to lead me to question conclusion stated.

4222 On Lahontan's map is the inscription "Land carriage of Chekakou," applying evidently to the point or points of map between northernmost point of the Illinois river and southernmost point of Lake Michigan or Ilinese Lake as it is called.

On carte particuliere occurs the inscription "Portage y des Ilinois," evidently in the same place, applying to the same feature. On both maps, Illinois river ends at a point to the south of the eastern side of Lake Michigan, in what I take to indicate a lake; and the St. Joseph river on both maps alike rises not far from this point last mentioned, also in a lake, and flows approximately due north, although the course of river is not straight, to Lake Michigan. Between the two lakes the source of the Illinois and source of St. Joseph on each of the maps is a cross which I take to indicate a portage, although there is no inscription at this point. The place names along the St. Joseph river are so similar on the two maps as to furnish additional evidence to my mind that the Carte Particuliere is but a copy of the Lahontan map.

4223 I note on the map itself the indication Tom VI., No. 21, page 90. I turn to Philips' list of geographical atlases in the Library of Congress, which reads (reading):

"Library of Congress. A list of Geographical Atlases in the Library of Congress with bibliographical notes.

Compiled under direction of Philip Lee Phillips, F. R. G. S. Chief, Division of maps and charts. Volume 1, Atlases. Washington, Government printing office, 1909."

This volume is put out by the Library of Congress and undertakes to describe and indicate maps and atlases contained in the Library of Congress. This volume indicates a list of geographical atlases in that library. On page 305, is an

4224 account of the atlas of H. A. Chatelain, the title of which has been read, and in a list of maps pertaining to America, Volume 6, No. 21, * * * Fleuve Saint Louis. * * *

At page 326, of this atlas under the designation, "The following maps relate to America," I find "Volume 6, No. 21, Carte Particuliere du fleuve Saint Louis"; this is the evidence on which my conclusion as to the identity of this map rests.

4225 My understanding is that this publication is regarded by scholars and historians as being entitled to great credit on the score of its reliability. In my judgment this particular map which has been introduced by complainant is entitled to no greater weight than the map of Lahontan, whose journey is rejected by the complainant.

Taking up the map entitled "De Lamare Karte van Den Seen in Canada" referred to by Alvord at transcript, p. 154, (Abst., 66; Appendix .....), I am unable to find any reference to De Lamare in Winsor's Narrative and Critical History, or his other works, so base my remarks on what appears in the record. A map appearing under such auspices, and from such sources as the record shows it to have been derived from, is of little or no value as historical evidence.

4226 It purports, the record shows, to be based on French maps. We have French maps introduced into the case, and it adds nothing to the strength of the historical argument to add German maps based upon them which may or may not have been made intelligently. If made intelligently, would only repeat representations of French maps. The Carte Particuliere, just under discussion, serves as an example of the danger of reliance on anonymous maps.

I have examined Moll's map of 1729, entitled: "A New Map of ye North Part of America Claimed by France under ye Names of Louisiana, Mississippi, Canada & New France with the adjoyning territories of England & Spain. By H. Moll, Geographer. 1729," referred to by Alvord at transcript, page 138 (Abst., 60; Appendix, ...), who said:

"Moll was in fact regarded in his day as an authori
in Cartography. He was in constant touch with t
Board of Trade, and used the papers of the Board
Trade for the purposes of obtaining information fro
which he could make his maps. He also was famili
with the French maps."

4227 Moll was a Dutchman who came to England in 168
and became the Royal Geographer and produced ma
maps and charts, among others his Atlas Minor of sixty-t
maps, which the Government has just offered as being offer
by complainant. I base my conclusions upon it. The Atl
Minor was first published in 1729. There were lat
4228 editions. I conclude this is the edition of 1732.

4229 As to Moll's authority, he had access to the Boa
of Trade and other governmental reports, but he seer
to have been very credulous in temperament, and th
credulity often led him into error. I base this conclusi
upon statements made by Justin Winsor in his "Mississip
Basin," page 80, the citation headed La Hontan, 1703, de
ing with La Hontan's discoveries or pretended discoveri
(reading):

"The most distinct of these stories were found in
book which Lahontan published at The Hague, in 17
This story-teller claimed that some fifteen years befo
he had found a stream entering the Mississippi ne
Lake Pepin, which came from the setting sun. By f
lowing its sluggish current he had come to a large la
lying beneath the mountains, and beyond these highlan
there were the sources of another river, which could
followed to the Pacific. The statement was specific a
gained credence and the wonders of it had doubtle
something to do with causing the multifarious publi
tions of the book in French, English, and German, wh
was put upon the market at the Hague, in Lond
Hamburg, Amsterdam, and Leipzig, for the next eig
or ten years. For a while the story prospered, and
gained a qualified assent from De Fer. Delisle was
clined to believe it, but at a later day, importuned
discard it, he yielded to the arguments of Bobe agai

4230 it. Homann, in 1706, put this 'Riviere longue' on
map. The English cartographers, Moll and Senex, ga
it full play in their maps, though Senex finally reject
it."

And again on page 104 of the same volume, the citation being headed "Maps of Louisiana" (reading):

"There was no lack of general interest in these measures, and one finds occasionally in cartographical collections a 'Cours du Mississippi ou Saint Louis,' as the map was called, prepared in 1718, to abet the fever, at the command of the company, by a leading geographer, Nicolas de Fer. Across the English Channel there was an echoing furor, and an old plate of John Senex's 'Map of North America' was revamped to meet the demand for information about the new El Dorado. It was inscribed to Law. Herman Moll, the rising English cartographer, inserted (1720) in his map a legend athwart the trans-Mississippi region, saying that 'This country is full of mines.' At a later day, 1755, Mitchell, in his great map made in the English interests when the final struggle was impending, recalled the fever in the legend: 'Mines of Marameg,' which gave rise to the famous Mississippi scheme, 1719."

The map I have before me, the Atlas Minor being the edition of 1732, there appears in the region Winsor has just been discussing to the west of the Mississippi and
4231 roughly opposite the mouth of the Wabash or Ohio river, the inscription, "Country full of Mines."

I turn to Winsor, chapter 6, page 111, entitled, "The Barriers of Louisiana. 1710-1720," the paragraph being, "Lahontan and a passage to the Western Sea" (reading):

"If La Harpe and St. Denis had failed in finding in the southwest an overland way to the South Sea, there was a vague hope that it might yet be revealed in the northwest. If Lahontan's story of his Riviere Longue was not generally discredited, since Delisle, the leading geographer of France, had pronounced against it, there were, however, still a few credulous cartographers, like Homann of Nuremberg, and Moll the Engish map-maker, who placed it on their maps. The common opinion among those interested in this problem of a western way to the Pacific pointed rather to the Missouri, or perhaps to some way from Lake Superior by a higher latitude."

On this map in the Atlas Minor the Long river of Lahontan is represented with indication of the names of some of the tribes which Lahontan set down and which his-
4232 torians, generally, agree to have been purely fictitious, and a further indication of Lahontan's limit of discov-

ery. I now read from Winsor's "Mississippi Basin," page 123, the paragraph headed "Coldon and the Indian Trade," through another headed "English Lack of Discernment" (reading):

"Settlements which the Dutch had formed on the Hudson, and the intercourse which that people had wisely regulated with the neighboring Indians, had come by the transition of power into the hands of those who fully comprehended the nature of their inheritance. No one among the supplanting English knew it better than Cadwallader Colden. He spoke of New York as 'The only province that can rival and I believe outdo the French' in the Indian trade; and trade was on the whole the most important influence now at work in the struggle for a continent. In a pamphlet which Colden had published in 1724, on the encouragement of the Indian trade,
4233 he had urged the occupation of the country south of the Great Lakes. It was partly to aid such encouragement, and at the same time to make manifest how the Five Nations could be helpful in such schemes, that he set about preparing a history of those tribes. He hoped by this publication (New York, 1727), to instruct those English statesmen who had shown supreme ignorance of American geography, in contrast to the enlightened apprehensions of their French rivals. The difference between them was naturally much the same as that which Delisle with his care, and Senex and Moll with their wild conjectures, had made manifest in their respective maps. There seemed sometimes in this application of intellectual discernment in American matters a predetermined purpose on the part of the insular English to go wrong if possible. When they reprinted Colden's book, in London, in 1747, and in 1750, the text was so perverted as to convey on some points little conception of what the author had written."

Concerning this ignorance on the part of the British to which the citation just concluded refers, I call attention to John G. Shea's introduction to Colden's History of the Five Indian Nations; the title page (reading):

4234 "This History of the Five Indian Nations depending on the Province of New York, by Cadwallader Colden. Reprinted exactly from Bradford's New York Edition, (1727). With an Introduction and Notes, by John Gil-

mary Shea. New York: T. H. Morrell, 134 Fulton street, 1866."

This is an exact reprint of the work of Cadwallader Colden, first published in 1727, which was under discussion by Winsor in the citation just read. Page X (Roman notation) (reading):

"To lay more completely before the public the importance of the Five Nations or Iroquois to the Colony of New York, as a barrier against the French and a means of controlling the West, Colden drew up his remarkable History of the Five Nations. Such a work was necessary when London merchants could assert to the King that the Five Nations lay so far from New York that French Indians lay between: And when they boldly declared before the Board of Trade that the Five Nations 'were two or three hundred leagues distant from Albany, and that they could not come to trade with
4235 the English but by going down the River St. Lawrence, and from thence through a lake, which brought them within eighteen leagues of Albany.

This was before the days when a British minister discovered that Cape Breton was an island, and a short historical sketch of the Iroquois or Five Nations and their relations with the French of Canada on the one hand, and New York on the other, was needed to teach King and Council, Lords of Trade and other ruling powers, that the Mohawks lived on the Mohawk, within a day's journey of Albany, as well as to enlighten them on the real position, influence and power of that confederacy.

Years after Colden alluded to the ignorance of British statesmen, contrasting it with the extensive information possessed and constantly increased by the French."

These citations from Winsor indicate that Moll was credulous and let conjecture take place of knowledge and solid information.

4236 They indicate also that he was under the influence of Lahontan. A comparison of his map with Lahontan's map of 1703, in Thwaites' Edition of Lahontan, Volume I, facing page 156 (Appendix, ...), reveals the extent of
4237 this influence. Moll still retains the Long river. He calls the Fox, the Paunts R. just as Lahontan did on the map of 1703, although Delisle in his map of 1703 (Appendix, ...) had labeled it Rivieri des Reynards, and is so named

on VonKeulen's map of 1720 (Appendix, ...), which is No. 17 of the C. H. S. Collections. The resemblance between place names along this river on the two maps is unmistakable. The St. Joseph river with its place names is practically the same on the two maps, and the Illinois and the region at the southwest end of Lake Michigan, Moll's Illinois river is obviously modeled after that of the Lahontan map.

LaHontan calls the portage the land carriage of Chekakou. Moll on this map calls it the L. carriage Ilinese, but on another map of his used LaHontan's exact designation, which map is referred to by Winsor on page 24 of the "Mississippi Basin," where he says (reading):

> "What Herman Moll, the English cartographer, called the 'land carriage of Chekakou' is described by James Logan, in a communication which he made in 1718 to the English Board of Trade," etc.

4238 The representation of the portage is virtually the same in the two maps, although the distance indicated by Moll would be slightly greater than that indicated on LaHontan's. In both, the length of the portage would evidently be considerable, for in neither is there any indication of a river corresponding to the modern Desplaines. It is obvious, that Moll's map has no more authority so far as Illinois and the matter of the connection between Lake Michigan and the Illinois river is concerned, than has LaHontans' map of 1703, since Moll in these respects, at least, is evidently bat a copy of the former.

Have examined Mitchell's map, entitled, British dominions in North America, with roads, distances, etc., referred to by Alvord at transcript pages 142, 143 and 144 (Abst., 61-62; see Appendix, ...); concerning the maker of the map, Alvord says that since 1783 in every controversy over the boundary between Canada and the United States reference has been made to John Mitchell's map as being the map that was at that time used to show the boundaries.

4239 Mitchell enjoyed great repute as a map-maker in the 18th century, not due alone to accuracy, but to a very considerable extent to the fact that on the eve of the final struggle between France and England for supremacy in North America, Mitchell gave the fullest expression to the English territorial claims. That goes far to explain the repute of Mitchell's map with the British Government, and to explain why he was referred to frequently in international disputes.

I base my conclusion on Winsor, who is commonly regarded as the master among American historians, of this particular field of work, so have used him largely in connection with my general discussion of the maps of this period. Winsor,
4240 "Mississippi Basin," page 104 (reading):

"At a later day, 1755, Mitchell in his great map made in the English interests when the final struggle was impending, recalled the fever in the legend: 'Mines of Maramek, which gave rise to the famous Mississippi scheme, 1719.'"

I turn to page 234, the subject being "The Anglo-Iroquois Claim" (reading):

"The English had for a time found it more profitable to base other claims, as we have already mentioned and shall more fully explain in another chapter, upon the surrender by the Iroquois of jurisdiction over a vast western country. It is quite uncertain if the Confederates understood this concession as the English did, and the latter claimed that the French had unconditionally recognized this acquired right in the treaty of Utrecht (1713); but the French professed certainly to think otherwise. Colden had set forth this Anglo-Iroquois claim as based on the conquest of the country by the Confederates 'about the year 1666,' when, 'amply
4241 supplied by the English with fire arms, they gave a full swing to their war-like genius and carried their arms as far south as Carolina, and as far west as the river Mississippi, over a vast country, which extended twelve hundred miles in length from north to south, and about six hundred miles in breadth, where they entirely destroyed the whole nations of whom there are no accounts remaining among the English.'

When, in 1755, the English were fairly embarked in their final struggle with France, Mitchell, the geographer, claimed that 'the Six Nations have extended their territory to the River Illinois ever since 1672, when they subdued and incorporated the ancient Chaouanons (Shawnees)' * * * Beside which they exercise a right of conquest over the Illinois and all the Mississippi so far as they extend. This was confirmed by their own claims to possession in 1742 (at the Treaty in Philadelphia), and none have ever thought fit to dispute them."

There is an omission then, not my own omission, but that of the author:

"The Ohio Indians are a mixed tribe of the several Indians of our colonies, settled here under the Six Nations, who have always been in alliance and subject to the English."

Page 330 (reading):

4242 "This Iroquois-English claim had distinguished advocates in Colden, Franklin and Pownall, but there was some abatement at times in its pretentions. Sir William Johnson, in 1763, traced the line of this dependent country along the Blue Ridge, back of Virginia, to the head of the Kentucky river, down that current to the Ohio above the Falls; thence to the south end of Lake Michigan; along its eastern shore to Mackinac; and northeast to the Ottawa, and down that river to the St. Lawrence. The right of the English king to such a territory as this dated back, as the English claimed, to an alleged deed of sale in 1701, when the Iroquois ceded these hunting grounds to English jurisdiction, in addition to their ancestral lands. It was, as they claimed, a title supplementing that of their sea-to-sea charters. When the French cited the treaty of Ryswick (1697) as giving them sway over the river basins where they held the mouths, and claimed this as paramount to any rights the Iroquois could bestow, the English fell back on these territorial charters, as the most ancient and valid claim of all.

If the English character claims were preposterous, this supplemental one was, in even some part of contemporary opinion, equally impudent and presumptuous. There was by no means an undivided sentiment among the colonists upon this point; and history has few more

4243 signal instances of tergiversation than when, at a later date, the English government virtually acknowledged the justice of the French claims in urging the passage (1774) of the Quebec Bill. 'We went to war,' said Townshend, in the debates on this bill, 'calling it Virginia, which you now claim as Canada.'

* * * * * *

The French were more unanimous in their view; but it was only gradually that they worked up to a full expression of it. Bellin, the map-maker for Charlevoix, had drawn in his early drafts the limits of New France

more modestly than the French government drew to maintain, and he was soon instructed to fashion his maps to their largest claims. In like manner the earliest English map makers slowly came to the pitch of audacity which the politicians stood for, and Bollan, in 1748 complained that Popple (1732), Keith (1733), Oldmixon (1741), Moll (at several dates), and Bowen (1747), had been recusant to English interests. It was not till Mitchell produced his map in 1755 that the most ardent claimant for English rights was satisfied."

Reading further from Winsor's Mississippi Basin, p. 335, from the paragraph entitled "Maps of the Ohio Country" (reading):

"Danville and the other French map makers had been
4244 brought to representations that kept Galissonniere's statement true. The English cartographers had done equally well for their side, and Mitchell could be cited to advantage. His Map of the British and French Dominions in North America was based on documents which the English Board of Trade thought best enforced their claim, and the publication, when made, in 1755, was dedicated to their secretary. In an accompanying text the English claim was pushed to its utmost, and every old story was revamped which served to bolster pretentions of the English preceding the French in exploring the country, reviving the antiquated boast that New Englanders had even preceded the French in crossing the Mississippi, and had really furnished the guides for La Salle's discoveries."

The map referred to in this last citation is Mitchell's, which the Government has introduced in this case, and on which my remarks in this connection are based. As complainant's witness has testified, Mitchell was one of the leading cartographers of the 18th century, but the references I cited show, I think, that it was his swallowing the extreme English
4245 claims to territory in the interior of North America that particularly made his work acceptable to the government. They also show that Mitchell in his representations on his map did not confine himself to the established facts.

4246 I now read from Woodruff's article heretofore mentioned by me at transcript, page 4186. (Abst., 1578.)

4247 The volume is entitled, "Forty Years Ago. A Contribution to The Early History of Joliet and Will County. Two Lectures Delivered before the Historical Society of Joliet

by George H. Woodruff, December 17th, 1873, and March 24th, 1874. Published by Jas. Goodspeed. Joliet: Joliet Republican Steam Printing House. 1874." Page 66 (reading):

"The opening of the canal was a new era in the history of this city and vicinity. Hitherto goods had been transported from Chicago chiefly by ox-teams, drawing the old Pennsylvania canvas-covered wagon, generally called 'prairie schooner,' and not inappropriately.

A stage route was established as early as January, 1834, between Chicago and Ottawa, running by Plainfield, or Walker's Grove. Judge Caton informs me that he piloted the company which first went through and established the stations, and that the party suffered greatly
4248 from the intense cold. In 1837, the stage came from Plainfield across to Joliet, and then passed down the river to Ottawa. After a year or two more the route was changed again, going to Chicago directly up this river, on the west side, and leaving Plainfield out in the cold. A tedious ride it used to be, by stage, to Chicago, especially when we went round by Plainfield. Just think of it, you who are so impatient at the hour and a half required now to pass from the one point to the other; an entire day used to be required to make the passage, and sometimes when the roads were bad, considerable of the night, too. I remember when coming back from the East in the fall of 1837, the driver of the stage lost his way in coming across from Plainfield, and wandered about quite a while on the trackless prairie. In those days the arrival of the stage and the mail was the event in our daily life. Frequently there were two or three 'extras' and the capacity of the 'Old American' and the 'Higley House,' and later, of the 'National,' were often taxed to their utmost to supply the 'wheat bread' and 'chicken fixings' which the travelers required, while the regular boarders very often had to take up with 'corn bread and common doings.' When the canal was completed in 1848, of course the day of stages was over, and friend 'Kipp,' and others, had to 'give up the ribbons,' and the day of the Packet Boat and 'Captain Connett' had some,—only to be superseded in its turn, by
4249 the rushing railway train. What devise shall displace the last, who can conjecture?"

Q. Now, Dr. Quaife, I wish you would give us your summary based upon historical sources, which have come to your

attention, of the use of the Desplaines river and of its capability for use as indicated by these historical references?

Objection to conclusions of witness as to capability of use; incompetent, irrelevant and immaterial.

The first record we have of the use of the Illinois-Desplaines river route by white men is in the year 1673, when Joliet and Marquette returned from their exploring expedition by this route. Their records of the actual passage of the river are exceedingly scanty. Joliet on returning to Canada, his documents having been lost, gave out such an oral account of the country he had passed through as to give rise to the impression that it would be an easy matter to cut a channel for boats so as to connect the Great Lakes with the Mississippi by a practical waterway.

Marquette again used the Desplaines route in spring of 1675; gave us scanty report. Then La Salle appeared,
4250 passed up and down Desplaines river route several times. Acquaintance with the country more thorough than Joliet and Marquette's. Came to establish trading posts and colonies, and persevered in the work for several years; Joliet merely passed through once. Marquette shortly before his death, made a second brief visit. La Salle's reports of the country and his doings are, as compared with Joliet, fuller and more explicit, particularly as to Desplaines river route. Took issue squarely with Joliet on question of the feasibility of opening a trade route between Great Lakes and Mississippi by cutting a short canal through the portage between the Chicago and Desplaines rivers. His statements are so explicit and the reasons for his propositions are given so carefully, that if the extent of our knowledge of the subject were measured by the reports of Joliet and La Salle alone, there could be little hesitation in giving preference to the latter's statement about the route in question.

In fact, however, the Illinois country having thus been laid open to the knowledge and use of white men, this knowledge and use have continued down to the present day; and scattered over the period of time that has elapsed since
4251 the discovery, there are reports more or less infrequent of the actual, attempted or proposed used of the Illinois-Desplaines river route by white men for purposes of trade or travel; and later of examinations of the streams in question and of the surrounding region by the surveyors and engineers of one kind or another.

Thus it becomes possible to bring to bear upon the disputed question which originated with Joliet and LaSalle, whatever knowledge concerning it has been accumulated in the course of the 240 years or so that have elapsed. In this summary, however, it is my intention to limit myself more particularly to the period between 1673 and 1840 approximately, and to inquire what historically was the nature of the use of the Desplaines during this period, and whether such use tends to bear out the statements of Joliet or those of La Salle. I shall begin with the consideration of the differences between the two men in the matter of issue.

Joliet passed through the country once rather hurriedly, having made the entire trip from the starting point down the Fox-Wisconsin and Mississippi rivers to the ultimate point reached and back, by way of the Illinois to the conclusion of the trip in about four months. He had little knowledge of the geography of the region he was traversing, except in so far as it came under his own immediate observation. He lost his records, but gave verbal reports and on these are based our knowledge of what he had to say about the Chicago-
4252 Desplaines route. Frontenac seems to have understood from him that one could sail a boat from Lake Michigan to the Mississippi. Dablon, whose report appears the more correct and worthy of credence, represents that this could be done with the cutting of a canal for half a league at the Chicago portage.

La Salle, on the other hand, was in the Illinois country at various times from 1679 to 1683. He undertook to establish a colony 100 miles from Chicago, and did establish a fort there which became the center of his operation, and was occupied by the French for upwards of twenty years. His interest was in developing the trade of this region, and while he looked ultimately to securing a southern outlet for it, he must for a time find such outlet by way of Canada.

In the course of his Illinois career, La Salle passed between Canada and the Illinois country a number of times. He became acquainted therefore with the routes which could be followed, and though he himself came by way of the Great Lakes to the foot of Lake Michigan, and thence either by the St. Joseph-Kankakee, or by way of the Chicago-Desplaines to the Illinois, he became convinced that it would be impracticable to carry on trade between the Illinois country and Canada by such a route or routes, and that a route by way of the Ohio

river and thence to the lower lakes and Canada, was far
4253 more feasible.

In discussing this subject, he is led to take issue with Joliet as to the feasibility of water communication between Lake Michigan and the Illinois, and so to state explicitly what are the hindrances to such a route. The goods brought to Chicago in barges or barks must here be transshipped to canoes, for, in spite of Joliet's assertions only canoes can navigate the Desplaines for a distance of forty leagues, La Salle not using the term Desplaines, of course.

At a later time, evidently, La Salle reverts to this subject, going into a somewhat detailed description of the Chicago portage and route. As to Joliet's statement about a canal of one-quarter of a league, he says this might happen in the spring perhaps, but not in the summer, "because there is no water at all in the river so far as Ft. Louis." Other difficulties are dwelt on. The most important, so far as the
4254 Desplaines is concerned, being that spring floods are so great that he doubts if a vessel could overcome them; and that if this could be done it would avail but for a short time, fifteen or twenty days in the year at the most, after which there is no more water.

With reference to these two accounts, I would observe here that La Salle's account on the whole harmonizes well with our present day knowledge of the characteristics of the Desplaines river, while that of Joliet does not. The statement of Joliet has been found to be untrue,—that a feasible water route for vessels could be had by cutting a canal of a half a league; that is to say, across the short portage between the two rivers. La Salle's statement concerning the fluctuations of the Desplaines are borne out of the whole by others.

I have in mind Graham and Philips' report, Joutel's Journal, Hubbard's account, and I arrive at this conclusion further by a comparison of such accounts as those of St. Cosme, Charlevoix, Schoolcraft, Kennedy, and so forth, on the one hand, with such accounts as those left by Child, Fonda, and
4255 Marquette on this second expedition, on the other hand.

I don't think Professor Alvord's opinion that La Salle was prejudiced against the Chicago river route and in favor of St. Joseph-Kankakee route by reason of the opposition of the Jesuits is well founded. The reasons for my conclusion are as follows:

In the first place, La Salle actually passed over this route once in January, 1682, and he may possibly have done so an-

other time, that is, in the winter of 1681, when going up the Illinois-Desplaines in search of Tonty.

Secondly, the Jesuit Mission of Marquette was not at Chicago, but was on the Illinois at Kaskaskia. Parkman locates this village as being about seven miles below the site of the present town of Ottawa. That is, virtually the very capital of La Salle's colony; and so I conclude that it is not warrantable statement that La Salle avoided Chicago because the Jesuits were stationed there. It is true that Marquette died and Allouez succeeded him, but it was in the same mission.

Neither Marquette nor Allouez was in Chicago or Kaskaskia from 1679 to 1683, the period of LaSalle's activity in Illinois.

In place of La Salle avoiding the Jesuits, Allouex avoided
4256 La Salle, and as a basis for this conclusion, I cite Shea's footnote to his Charlevoix's History of New France, Volume 3, page 185 (reading):

> "Allouez, on the death of Marquette, proceeded to the Kaskaskias,"—this being the name of the Indian village, of course—"in October, 1676, and remained connected with it till 1679; Disc. and Expl. of the Mississippi, pp. 66-77; Relation de la N. F., 1673-9, pp. 121-134. He retired on the approach of LaSalle, who was greatly opposed to him, but returned again in 1684, and was there apparently in 1687 and '89. He died in the West, apparently about Aug. 1690. He belonged to the province of Toulouse, and came to America, July 11, 1658."

I also cite Joutel's Journal, Stiles Edition, page 197, under date of March, 1688, being the account of the return of Joutel's party from the lower Mississippi region (reading):

4257 "I have before observed, that there was a Jesuit, whose name was Dalouex (Here I read the footnote (2) to the effect that this means Allouez), at Fort Lewis, and who had been very much surpriz'd to hear that Monsr. de la Sale was to come in a short Time, being under great Apprehensions on Account of a Conspiracy intended to have been carry'd on, against Monsr. de la Sale's interest. That Father perceiving our Departure was fix'd, mov'd first, and went away foremost, to return to Micilimaquinay, so that they were left without a Priest at Fort Lewis, which was a great Trouble to us, because we were the Occasion of it, and therefore those, who were to remain in the Fort, anticipated the Time, and made their Easter, taking the Advantage of the Presence of F. Anastasius and M. Cavelier."

With reference to this last citation, that this party told the people at Fort Lewis that La Salle was alive and concealed from the people at Fort Lewis the fact of his assassination, which explains the trepidation of Allouez as pointed out in the passage. It was under the impression that La Salle was still alive that he moved to Michilimackinac, in anticipation of his coming. In view of the light which history throws on the character of La Salle,
4258 I think it is an unreasonable or impossible inference that he opposed the views of Marquette as to the Desplaines route, and himself went around by the St. Joseph avoiding the Desplaines, simply out of hostility to the Jesuits. All we know about La Salle shows he was an unusually bold and energetic and persevering character.

Before taking up the consideration of the historical evidences of the actual use made of the Desplaines by white men, I will lay down certain general conclusions which I have reached, without attempting here to substantiate them.

The Desplaines fluctuates greatly at different seasons, or as between periods of drouth and periods of copious rainfall. In the period of spring flood, boats of several tons burden might and probably sometimes did pass from Lake Michigan down the Desplaines and vice versa. The fluctuation ranged
4259 from a depth of six feet or even more to nothing,—the dry bed of the stream. There were then, times when a canoe might navigate the stream, even though no larger boat could do so. It is not entirely clear how much time of the year the stream was navigable for canoes. La Salle says there was no water at all in the summer, but he appears to imply that canoes could pass down it at other times than the fifteen to twenty day period of spring flood. Cass came up about the middle of July, at a time when from the sources it is evident the river had been raised by recent rains. It is not clear what the exact date of Joliet's and Marquette's first passage in 1673 was, but they started on their trip in June and reached Green Bay in September; so probably they were on the Desplaines late in August or some time in September. On the other hand, Kennedy and Schoolcraft both failed in their attempt, each in August, to navigate the Illinois river even to the Desplaines. It may be noted in this connection, that Kennedy's boat drew three feet of water; Schoolcraft's boat in 1821 was a large canoe which probably drew but a very few inches of water.

Further, it is clear that there was a highway of travel be-

tween Lake Michigan and the Mississippi river by way of the Chicago-Illinois river route. Doubtless the Desplaines was followed between the Chicago and the Illinois when this
4260 was practicable. It is entirely clear to what extent or to what proportion or periods of time this was practicable. Therefore, the many general references to this route as a highway for trade and travel should be interpreted so far as the use of the Desplaines is concerned, in the light of the knowledge which we gain from more detailed accounts of the route, which go into the character of the Desplaines portion, that is, in the light of the reports of those who actually used the Desplaines, or those who refrained from using it, for reasons involving the question of its navigability.

Finally, I would observe that there developed a wrong impression as to the ease of the navigability of the Desplaines; or to put it differently, the facility of water communication between the Mississippi and Lake Michigan by way of the Illinois-Chicago route. It came to be commonly repeated and reputed that such was the case.

4261 I have in mind such sources, and reports, as those of La Salle, Schoolcraft, Tousey, and the experience of the State of Illinois in constructing the Illinois and Michigan Canal.

I classify roughly, for the sake of convenience, the various historical sources bearing on the navigability of the Desplaines, as follows:

First: Accounts of those who used it.

Second: Accounts of those who tried to, or would have used it, but for a belief in or knowledge of the impracticability of this.

Third: Maps. These map be divided into (a) maps made by explorers; and (b) maps made by those who had never been over the route, but based their maps on the information of others.

Fourth: Accounts, which strictly speaking, are secondary, but which may be regarded as source material in the sense that the writers either through contemporary information or otherwise were nearer than we are to the facts concerning the use being made of the Desplaines. Here I have in mind such accounts as those of Imlay, Flint, Hutchins and so forth.

To take up then the consideration of the first of these
4262 classes. Professor Alvord listed eight instances of the actual use of the Desplaines by those passing up the river to Chicago; and six instances of such use by those who

were passing down the river from Chicago, the reference being to the record, page 472. These lists were as follows:

To Chicago: Joliet and Marquette, 1673; Joutel, 1688; Perrault, 1783; Hubbard, 1819; Child, 1821; Tonty, 1680; La Salle, 1681; Fonda, 1825.

From Chicago: Membre, 1682; St. Cosme, 1698; Hubbard, 1818; Marquette, 1675; Heward, 1790; Furman, 1830. But a slight correction there is in order, for Furman's trip was actually made one year before, 1829.

In addition to these I would here list the trip of Cass up the river in 1827; and Marquette's statement about the surgeon who tried and failed to pass up the Desplaines in 1675. And finally, Keating's report of Lieutenant Hopson's trip up the river. I do not mean to imply that Professor Alvord should have listed these, but that for the purposes of my discussion I include these along with those which Professor Alvord listed.

4263 And now I shall enter into an examination of the circumstances attending the use of the river in the cases cited, considering first the passages up the river to Chicago.

First, Joliet and Marquette, 1673. They came up some time in the summer, or possibly the early autumn. They had seven men apparently in two birch bark canoes, with the lightest possible equipment. The Journal gives no details whatever of the passage up the Desplaines, but it does show that to carry their canoes as far as twenty or thirty leagues was not deemed a serious task; and we know from other sources that two men could readily carry such a boat as theirs.

Second: Joutel, 1688. He or his party came up in March. They left Fort Louis the 23rd and reached Chicago the 29th. I would make a correction here in my statement; I should have said they left Fort Louis the 21st of March rather than the 23rd. This was evidently in the time of spring flood, for they had to pull the canoes in water much of the way on account of the swiftness of the current.

Third: Perrault, 1783. He, too, came up in the spring time. He left Cahokia May 4th. He had one barge and one canoe and was to pass by Chicago and rendezvous on Lake Michigan. There are no details whatever of his passage

4264 up the Illinois, and only by inference from the above statement, do we conclude that he used the Desplaines at all.

Fourth: Hubbard, 1819. Here is a clear case of passage

up the Desplaines of loaded boats. It was done in the spring time only, when they could sail across to the Chicago without regard to the channel.

Fifth: Child, 1821. He came up from St. Louis in this year. No month is given. But he says, speaking of the region between the Chicago and the Desplaines evidently, "The whole country was inundated"; and that there was not less than two feet of water all the way across the portage. Evidently, it was the season of spring flood, or at any rate of high flood. He had one canoe, paddled by two men; therefore I infer there were three persons in the canoe.

Sixth: Tonty, 1680. This passage was in the late fall or early winter. They reached the Pottowatomie village farther on, in December. The details as to their passage of the Desplaines are not entirely clear. Somewhere on the trip they abandoned their canoe. Parkman puts this (I refer to the abandonment) on the Desplaines river. I think, however, the sources do not bear him out, but that they indicate rather that they took the canoe to Lake Michigan. But assuming this to have been the case, there are no details to show how long a portage they made. Tonty merely
4265 says, "We made our portage." This we are left to infer from our knowledge of the usual stage of the river at this season. Joutel, Charlevoix, Hubbard, Schoolcraft, Graham and Philips, La Salle, St. Cosme and so forth, indicate that ordinary one must carry the canoe a large portion, if not all the way, from the mouth of the Desplaines to the Chicago.

Seventh: Fonda, 1825. I am under the impression that this journey was more probably made in 1827. I shall list it in 1825, as it appears in the document. He came up in a canoe with several Frenchmen; no month or date is given, that is other than the year. The account merely shows that such a canoe passed up the Desplaines. If so, we may fairly infer from our other sources, either that it was in the spring time or that rains had raised the water higher than usual; or else that they had to portage much of the Desplaines. There being no statement as to this last in the document, one of the two former alternatives seems to me more probably the true one.

Eighth: La Salle, in 1681. This refers to the time when La Salle, returning from Canada, found the Illinois village

sacked; went on down the Illinois river to the Missis-
4266 sippi in search of Tonty, and now returning back up the Illinois passes probably or possibly up the Desplaines. It is not clear how far up the Desplaines he went, his ultimate destination being the fort on the St. Joseph. It is explicitly stated that he went on foot, the river being frozen. This, then, has nothing to do with the question of the use of the river in boats or by boats. It should probably be considered under my second class. I have included it here simply because it is found here in Professor Alvord's classification in the record.

Next, I shall consider in similar fashion the passage down the river from Chicago. First, that of Membre in 1682. Perhaps this might better be designated the passage of La Salle and party in 1682 for this is the account by Father Membre of La Salle's journey down as given in Shea's Discovery and Exploration of the Mississippi, page 166, and following.

4267 The document shows then that in January of 1682, La Salle, Tonty and party, went down the Desplaines and further the Illinois, in sledges, the river being frozen. They dragged their canoes eighty leagues on the Seignelay. It is not perfectly clear to my mind, at any rate, whether this means eighty leagues in all from Lake Michigan, or at what point the eighty league statement is reckoning from.

Second: St. Cosme's account, 1698. They passed from the portage to the mouth of the Desplaines or the Kankakee between November 2nd and 11th, having portaged in all fifteen to seventeen and a half leagues of the way; fifteen leagues according to La Source's; seventeen and a half leagues according to my calculations of the various statements made in St. Cosme's account. On the return trip in the spring they did not use the river at all, but walked from approximately the region of Starved Rock.

Third: Marquette, 1675. He went down in March or the first of April, the river being at high flood. He states that the water is twelve feet higher than it was when he was there eighteen months or so before.

Fourth: Furman, 1830, or 1829 as the date should be. With several soldiers he went in a canoe down the Desplaines river in April; was on the Desplaines on April 27.

Fifth: Heward, 1790. The journal shows he went
4268 down the Desplaines in a pirogue, May 12th to 15th. For some reason he changed his canoe for the pirogue,

and he consumed two or three days in going down the stream some forty miles. It was a time of rainy weather.

Sixth: Hubbard, 1818. The date is evidently about October 1st. The passage of the Desplaines is very difficult. From Cache Island, they carried their goods on their backs most of the way; and they had often to put rollers under the boats to pass them along.

Now I have undertaken to sum up still more briefly this which I have just been discussing, and so I shall give a resume of the foregoing.

First, with reference to passages up the Desplaines:

1. Joliet and Marquette, 1673. Summer; probably September; light canoes. No details.
2. Joutel, 1688. March; high water; swift current.
3. Perrault, 1783. Time, May; no details.
4. Hubbard, 1819. Spring flood.
5. Child, 1821. Time of flood. No further indication as to date.
6. Tonty, 1680. November or December. Had trouble in making the passage. No entirely clear whether on foot or in boats.

4269 7. LaSalle, 1681. December to January. Was on foot. May not have come up the river any considerable distance. There is no certainty as to this one way or another.

8. Fonda, 1825. As I have pointed out, I think more likely the date was 1827. No month and details of the trip given.

That is, four, Joutel, Hubbard, Child and Perrault, came up if not in the spring, then in time of high water. Three of these expressly dwell on the flood conditions, the fourth giving no details. Two, Joliet and Fonda, give no month and no details. Two, LaSalle and Tonty, came in the winter. LaSalle on foot, and Tonty possibly so, though this is not clear.

Then I summarize in similar fashion the passages down the Desplaines.

1. Membre, or LaSalle, 1682. January; on sledges, a distance of 80 leagues.
2. St. Cosme, 1698. November; carried goods fifteen leagues along the Desplaines; took eleven days approximately from the Chicago portage to the mouth of the Desplaines.
3. Marquette, 1675. Time, March; condition, high flood. As I have pointed out, possibly this may have been the first

day or two of April. About the close of March at any
4270 rate.

4. Furman, 1829. Time, April; so far as details go, the water was high enough to paddle a canoe down the river.

5. Heward, 1790. Time, May 12th to 15th; rainy weather.

6. Hubbard, 1818. Time, October; much difficulty; carried goods most of the way from Cache Island.

That is, to conclude, three, Marquette, Heward and Furman came in the spring between March and May or from March to May, the water being high. I have just indicated what qualifications, so far as Furman is concerned, this statement is properly subject to. One, Membre or LaSalle, went on the ice with sledges. Two, St. Cosme, and Hubbard, compelled to carry their things a large part of the way. St. Cosme fifteen leagues; Hubbard from Cache Island.

Now to summarize both sets of passages, that is, those pertaining to trips up the river and those pertaining to trips down, the following generalizations result. I think in preparing this summary I have not made allowance for the additional accounts which I have added to Professor Alvord's list, and so I will state the generalization with that qualification in mind.

4271. Q. You mean those that you added?

A. Those that I added as pointed out, to the list that Professor Alvord gave. Total number, 14; total number down, 6; total number up, 8. Total in the spring or time of high water, 7; total number who did not come in boats on the river, either a large part or all of the way, 4, as follows: St. Cosme, Hubbard, and Membre, down; LaSalle, up.

This leaves three, Tonty, Joliet and Fonda, concerning whom details are lacking. One may have navigated the Desplaines but we are not clear as to this. The other two more probably did, but details are wanting.

In the foregoing generalization I have not taken account of my additions to Professor Alvord's classification but here I see I have here taken them into account. To these should be added the trip of Cass up, in 1827. It is clear that he came up the Desplaines in a large canoe, holding a dozen men, without getting out of the boat. This was about the middle of July. It is also clear that rains had raised the river higher than ordinary at this season, for they navigated the boat across the portage and through Mud Lake and spent the night in the boat in Mud

Lake, and according to Hubbard only in very wet season or time of high water would Mud Lake float a boat.

Here, too, should be included the attempt of the surgeon to bring up a canoe load of furs about the first of April,
4272 1675. He failed and gave up the attempt, but from excess rather than from lack of water.

Taking up the second class, excluding LaSalle's trip in January, 1682, which has already been considered in the first classification, I have here then to consider the trips of Charlevoix in 1721, of Kennedy in 1773, and of Schoolcraft in 1821.

Charlevoix planned to use the Chicago-Desplaines route in September, but he gave up the idea, as pointed out in the letter, partly because of a storm on Lake Michigan and for the reason that because of the river being a mere brook, he was led to believe that there was too little water for his canoe.

Kennedy tried to ascend to the head waters of the Illinois in a boat of three feet draft. The time was August. He was compelled to leave the boat some sixty miles below the mouth of the Desplaines. It seems a reasonable inference that there could have been little water in the Desplaines at this particular time.

Schoolcraft's effort was similar to that of Kennedy, except that Schoolcraft's boat, as pointed out, was a large canoe, which presumably drew less water than Kennedy's boat. The time was August, 1821. He ascended the river to Starved Rock. Here he found the water in places but a few
4273 inches deep and so the party came the rest of the way to Chicago on horseback. Schoolcraft thus passed up the Desplaines valley and examined the situation with reference to the proposed canal. As a result of his observations on this expedition, these observations having already been read into the record I merely refer to them, he came to the conclusion that the short canal commonly talked of was impracticable; that one of thirty miles or longer would be necessary to provide a waterway from Lake Michigan to the Illinois and the Mississippi.

With these sources I would group also the letter of Tousey. He came to Chicago imbued with impressions favorable to the canal. He went down the Desplaines on horseback, and as a result of his observations, was led to conclude that the project of the canal would be of greater difficulty and magnitude than he and the public generally had supposed. The water was uncommonly high at the time of this visit.

I should say by way of explanation that I do not mean to

imply that Tousey had any intention of navigating the Desplaines, but that I class him here and discuss his account here for another reason.

To summarize these four sources: Two, in August, Kennedy and Schoolcraft, found it impracticable to navigate the Desplaines. One, in September, Charlevoix, adopted another route because of information which he relied upon that the river had not water enough to float his canoe. Two, Tousey and Schoolcraft, after traversing the route on horseback, expressed the opinion that the common belief in the feasibility of the short canal was erroneous. One says it will be attended with a much greater expense to open. The other that a canal to Mount Joliet or even much further is necessary.

4274

Concerning my third group, the maps, I shall comment briefly only upon the two subdivisions, in order. First, those made by explorers. These alone would rank in the strictest sense as first grade sources comparable to the oral accounts of explorers, in so far as a map can be understood and legitimately interpreted. Of such maps I have in mind three; Joliet's, Hennepin's and LaHontan's. Joliet's map agrees with his verbal accounts. These have been considered, and so I will make no comment on the map further than it seems to testify, I suppose this would be a reasonable interpretation, to the navigability of the Desplaines.

I might stop here to point out that I am using the word "navigable" and the term "navigability" in the sense of passing a boat in the water along the river.

The others also harmonize with the verbal accounts given by their authors. Like these verbal accounts, the maps have been assailed on the ground of the untrustworthiness of the author. Hennepin represented the Desplaines as not navigable, agreeing closely with LaSalle in his account. LaHontan reports a portage of twelve leagues, the obvious inference being that the Desplaines was not navigable so far as his experience went. Then to consider those maps made by men who depended entirely upon reports, verbal or written, of others.

4275

These maps really belong in the same class as to authority, with the various compilations, and second hand statements which have been introduced into the record; and for a discussion of them I would refer, and for my conclusions concerning them, I would refer to my discussion already put into the

record on the subject of cartography, and of the specific maps which I have taken up.

With reference to Class Four, which includes far the larger number of references introduced by the United States, I would point out merely the following:

These accounts are all worthy of consideration for the possible light they may shed on the question of the use of the Desplaines. All should be subjected to careful scrutiny to determine, so far as possible, what validity they really pos-
sess. What the sources of the authors' information may
4276 have been; how carefully they made use of these sources;
what inferences or deductions may reasonably be drawn from these accounts, and in general, whatever tests the critical historian is in the habit of applying to sources in the course of his work. When general statements as to the use of the Chicago-Illinois route are made, and this point perhaps I have sufficiently made already, one must attempt to interpret them in order to arrive at a conclusion as to their bearing on the Desplaines.

As I have already pointed out, I think it is proper, where necessary, to bring to bear upon this interpretation the knowledge gained from the more detailed accounts. Those which I have grouped under class one are the ones I have here in mind; and from the existing conditions with reference to the Desplaines river route.

Motion to strike out conclusions of the witness on the ground that witness states that his point is the capacity of Desplaines in its natural state for use for commercial purposes, which is a question for the court.

The WITNESS (continuing): I have examined the conclusions drawn by complainant's witnesses as to actual use made
of the Desplaines river in carrying on trade and com-
4277 merce as shown by these historical sources. Directing
my attention first to the conclusion reached by Professor Alvord, appearing on transcript page 361-362 (Abst., 170), in which he says that

"Giving due weight to all the sources of information that are available, my opinion is that from the latter part of the 17th Century through the first third of the 19th Century, men engaged in the fur trade passed up and down the Chicago and Desplaines rivers in canoes and flat boats very regularly; that the fur trade was pursued by the French as long as they held possession of this country; was developed more fully by the English

and later by the Americans. That the most active trade carried on the two rivers falls between the period of 1783 and 1825, or thereabouts; that the traders found a very easy passageway by means of these rivers in the early spring. That during the time of drought such as occurred in the summer or fall, the passage was hard, but even then they forced their boats through the waterway, often being obliged, however, to carry their packages around the shoals and rapids."

4278 As to fur traders passing up and down the Chicago and Desplaines in canoes and flats very regularly from the 17th to the 19th centuries, the plain and obvious sense of this conclusion seems to me unwarranted by the facts. The sources in the record do not indicate the regular use or even the possibility of regular use of the Desplaines. I do not know just what was had in view in speaking of flatboats, nor do I know of any warrant for this statement as far as it applies to flats. As to canoes, can it be said the sources establish the fact of their passing up and down the Desplaines very regularly when Graham and Philips show that the river was dry or a gutter six months in the year; when we know it was frozen some two or three months; that in September Charlevoix considered it impassable; that Tonty and St. Cosme preferred the certainty of a nine league portage to the Chicago-Desplaines route in late October or early November; that Kennedy and Schoolcraft found it impassable in August; that Hubbard says in the one detailed account that he gives of his trip down, that they had often to put the boats on rollers and had to carry their goods on their backs a large part of the way?

As to the conclusion that the most active trade on these two rivers was in the period from 1783 to 1825, I do not care at the present time to dispute this, but I wish to examine

4279 the evidence as to what this "most active trade" amounted to. This is a period when one would naturally expect to find more records of such use than in the earlier period of white occupation of the interior. Professor Alvord, however, succeeded in finding but seven instances of actual passage of the Desplaines, my statement being based on what appears in the record, page 472. (Abst., 209.) These were, down: Hubbard, 1818; Heward, 1790; Furman, 1829.

Up: Perrault, 1783; Hubbard, 1819; Child, 1821; Fonda, 1825.

Of these seven, four occurred in the springtime. Heward,

May 12th to 15th; Furman, April 27th; Perrault in May; Hubbard, in the spring flood. No date is given for two, Child and Fonda; but it appears that Child came in a time of high water. Fonda gives practically no details.

Of the one remaining, this being Hubbard's passage down in 1818, the account shows the stream was in such condition that goods must be carried much of the way and boats must be put on rollers much of the way.

There are then seven instances in 42 years, five of them in the spring or flood time, with no certainty so far as one (Perrault) is concerned as to the passage actually being made over the Desplaines; another (Furman) was not a trader.

4280 On the other hand, I would observe, if the Desplaines was used actively in this period, what was the occasion for the wagon road, and the method of transporting boats by this road, as decribed by Graham and Phillips, and as referred to by Schoolcraft in his journey in 1821; and why the opinion of the traders whom Schoolcraft met on his journey, that a canal to Mount Joliet was needed?

To consider next the proposition that traders found a very easy passageway by means of these rivers in early spring; I would merely observe with respect to certain of the sources: LaSource and Montigny in 1699 did not. They walked 30 leagues and were very much fatigued. The surgeon in 1675 did not, for he had to pull the boat in the river and gave up the attempt. Joutel's party did not for a similar reason; they had to pull their canoes in the water and Joutel at least suffered from this. It may be admitted, however, that the passage was easier in the spring than at other seasons of the year.

Concerning the conclusion that during time of drought the passage was hard, but that even then they forced their boats through the waterway, I would say that some did this. For example, the American Fur Company traders as described by Hubbard; and St. Cosme's party, although in the latter

4281 instance the party left all but one canoe load of essentials at Chicago, preferring to make the long trip back after the remainder in the spring. The men from Montreal, reported by Joutel, did not. They actually abandoned the trip, or the transportation of their boats and merchandise at Chicago. Charlevoix, though only a traveler, and therefore, not loaded as a trader would be, did not. He sought another

route. Kennedy, in 1773, and Schoolcraft in 1821, did not; nor did Hubbard after 1824. And finally, the traders who used the well-beaten wagon road and the portage of fifty miles, as also those to whom Schoolcraft talked, evidently did not.

I now direct my attention to the conclusion of Dr. Thwaites, appearing at transcript page 989 (Abst., 415), wherein he says:

> "As a historian I would answer your question as follows: giving due weight to all the sources of information that I have examined, my opinion is that from the latter part of the 17th century through the first third of the 19th century, men engaged in the fur trade with the western indians, actually and quite regularly passed up and down the Chicago and Desplaines rivers in canoes and batteaux, Mackinaw boats, and other boats propelled by oars, or poles, laden with merchandise and furs; that these traders and travelers found a comparatively easy passageway by means of these rivers in the
> 4282 early spring, and sometimes at other seasons; that during times of drought, such as often occurred in the summer and fall on most of the western portage routes between the Great Lakes and the Mississippi (as for instance, on the well-known and much-used Fox-Wisconsin portage route) the passage was sometimes difficult; but even then these fur traders appear to have succeeded in forcing their boats over the Chicago-Desplaines waterway, although, perhaps, they were obliged here and there to make some carriage at that time of the year, the length of the carriage varying greatly from season to season, and from year to year according to the stage of water."

Professor Alvord having considered this same subject and I having just completed a consideration of Professor Alvord's conclusions, I shall not undertake to go into detail in every respect with reference to Dr. Thwaites' conclusions; but to subject them to such analysis as seems to me pertinent in the matter under discussion.

As to the regularity with which the Desplaines was used by traders and others, Professor Alvord used the words "very regular." Dr. Thwaites says "quite regularly." This is a weaker statement than Professor Alvord made, and my discussion of Professor Alvord's conclusion in this respect

should therefore be modified accordingly in considering
4283 Dr. Thwaites' conclusion.

I would observe, however, that it seems to me that there is warrant for this statement of Dr. Thwaites only in Hubbard's account of using the river up in the spring and down in the fall for a period of some six years or so. This doubtless was regular use of the river in that regularly in the spring and regularly in the fall the passage was made either down or up as the case might be. It seems to me somewhat strained to call this "quite regular" use, especially in view of the fact that Dr. Thwaites' conclusion applied to the whole period from the latter part of the 17th century through the first third of the 19th century.

Dr. Thwaites says these boats were propelled by oars or poles. I will simply point out that Hubbard indicates one other method; they were sometimes navigated on rollers.

He says further that they found a comparatively easy passageway by means of these rivers in early spring and sometimes at other seasons. It does not appear what his basis of comparison may be. Passing this by then, I shall consider his statement "sometimes other seasons." Of Professor Alvord's fourteen direct instances of the use of the Desplaines, in addition to Cass' trip in 1827 which I shall include here for consideration, making fifteen passages in all, the trips pos-
sible which seem to me may fairly be considered in
4284 analyzing this conclusion of Dr. Thwaites are as follows:

Those up the river: Joliet, September, 1673; light canoe, no details of passage.

Tonty, November to December, 1680; not certainly in a boat. Parkman says not. My own impression, as I have pointed out, is that Parkman's statement is not justified; and further, as I pointed out a few moments ago there is nothing to indicate the length of the portage that might have been made at this particular time.

LaSalle, December to January, 1680-1681; this passage was made on foot and great difficulty was encountered from snow and cold.

Fonda, 1825; no month and no details are given.

Child, 1821; no month is given. It is pointed out that there was high water, so I infer, although I grant this is not a necessary inference perhaps, that the passage was made in the spring time. Certainly in time of high water.

Cass, July, 1827. Apparently an easy passage in a large

canoe. There had been recent rains which naturally operated to influence the condition of the river.

The passages down then which I shall consider in this connection, are those of Membre or the LaSalle party, in January, 1682, on sledges on the ice, a distance of 80 leagues;
4285 St. Cosme, 1698, November, eleven to twelve days consumed; a distance of 15 to 17½ leagues portaged; Hubbard, 1818, October approximately; great difficulty pointed out in the document in making the passage.

I would like to ask Mr. Scott if I may see the other copy of my notes.

Mr. Scott. Yes.

A. There seems to be something lost in the copy which I have prepared.

(Document handed witness.)

The Witness (continuing: To summarize, of these nine passages, two, those of LaSalle, December to January, 1680 to 1681, and Membre or LaSalle, in 1682, were on foot or on sledges; of two others, Child and Fonda, no month or no details of the passage of the Desplaines are given, though it is a fair inference that Child's passage was made in the springtime. But for the purpose of my analysis, Dr. Thwaites did not show, and I believe it cannot be shown that either of these was not made in the spring.

This will leave then, five passages as the possible basis of this generalization. In three of these canoes were used, these three being the passage of Cass, of Joliet and of Tonty. This statement made on the supposition that we contradict Parkman and assume that Tonty went up the Desplaines in a
4286 canoe. The other two, St. Cosme in 1698, and Hubbard in 1818, had anything but an easy passage.

So that Dr. Thwaites' generalization rests on the three canoe trips of Cass, Tonty and Joliet. Cass was not a trader. If Tonty and Joliet were traders, they were not trading on this particular occasion or occasions, so that Dr. Thwaites' statement as to easy passage at other seasons seems to me to be without much warrant in the accounts of the actual passages made of the Desplaines at such times.

I would here further call attention to the fact which I have already shown in connection with my consideration of Professor Alvord's conclusions, that not all passages in early spring were easy. It is fair, it appears to me, to call attention, in connection with Dr. Thwaites' "other seasons," to

the experience of Kennedy, of Charlevoix, and of Schoolcraft.

4287 Next, to consider the statement that during drought the passage was sometimes difficult. I will call attention to two points; the duration of the drought, and I am using Dr. Thwaites' words, and the point which he has made, that the passage was sometimes difficult at such times. If Dr. Thwaites' statement is to be taken in what seems to be the obvious sense, by this sentence, that during times of drought such as often occurs in the summer and fall on most of the western portage routes, and so forth—I have read enough to indicate the sentence I have in mind—this sentence means during times when the Desplaines river was low. According to LaSalle this is most of the year. Graham and Philips said six months in the year; and I think it an obvious inference that they did not include the winter months in that statement. St. Cosme said there was no water in the river except in the spring, so that one must always portage from Isle La Cache to Mount Joliet, seven leagues. This seems to agree with the experience of Hubbard. I would ask then whether it is fair or proper to speak of so long a period as a time of drought, simply because the Desplaines was low or dry during such period. In my opinion it is not.

I would further observe, although at the risk of possible repetition, that this period in view is not the period of occasional drought, but rather one of the seasonal drought

4288 or low water.

As to his conclusion then that the passage at such times is sometimes difficult, I shall undertake to note and examine all of the instances, and here I am speaking of actual accounts of passages of the Desplaines, that properly fall under this class; and I will begin with the assumption that he means all passages other than those in the spring. We have then the following:

Up the river: Joliet, 1673; time, probably September; Child, 1821, no month; time of high water; Tonty, 1680, November to December; uncertainty as to his having passed the Desplaines in a boat; LaSalle, 1680 to 1681, December to January, on foot through the snow. Fonda, 1825; no month, no details. Cass, 1827; July; large canoe.

Down the river: Membre or LaSalle, January, 1680, on sledges on the ice. St. Cosme, November, 1698. Hubbard, October, 1818.

Here again are nine instances. Of these, two, LaSalle and

Membre, who were on foot or with sledges, may probably be excluded as not within Dr. Thwaites' view when making his statement. One, Fonda, may have been in the spring. At any
rate, it is certain there is nothing to indicate that he came
4289 in a time of drought. Cass; recent rains had swelled the
river. Child; there were two feet of water all across the portage. This leaves for consideration four: Joliet, Tonty, St. Cosme and Hubbard. To these I propose to add at this point, for the purposes of this analysis, Charlevoix, Schoolcraft, the men whom Joutel tells about, and Kennedy, who would have used the river if they could or if they thought they could.

We have then eight, which I shall now consider further. Of these eight there are no details concerning Joliet, the passage being probably in September; and as I have indicated we are uncertain as to Tonty in November or December. I suppose it is a fair inference that Joliet was not troubled much, though, since his canoe may not have weighed over forty to fifty pounds, there is no certainty as to how far he may have carried it. In this connection I would point out, however, that there is an indication which leads me to think that the portage made by Joliet and Marquette in 1673 was what we might perhaps describe as the short portage; that is, that they actually came up the Desplaines on that expedition.

I ask then, is it fair to say, and I use the word fair only in the sense of historical validity, is it fair to say that based on the experience of Hubbard, Charlevoix, St. Cosme, the men
whom Joutel writes about, Kennedy, Schoolcraft, Tonty,
4290 and Joliet, four of whom did not use the river, three
because they could not. and one because he believed he could not; two of whom we have no certain knowledge concerning and two of whom had the hardest kind of a trip, one portaging fifteen to seventeen and a half leagues, and the other at least seven leagues after reaching the Desplaines,—that the passage in time of drought, was sometimes difficult? It seems to me the conclusion does not adequately express the facts as they are found in the historical sources.

I read from Dr. Thwaites' conclusion:

> "But even then these fur traders appear to have succeeded in forcing their boats over the Chicago-Desplaines waterway although, perhaps, they were obliged here and there to make some carriage at that time of the year."

"That time of the year" in view in this statement is obviously the period of drought. That point I have already dis-

cussed. The statement then is that at such time they were perhaps forced to make some carriage here and there. I shall undertake to analyze the specific accounts on which such
4291 a generalization must be based, and to divide them into two classes; those who did succeed in forcing their way, and those who did not.

Under the first class, those who succeeded in forcing their way, we have Tonty, concerning whom no details are given; St. Cosme, who forced his way with one canoe, it is true; but left the others behind in cache at Chicago. Hubbard, in 1818.

Those who did not succeed in forcing their way: Schoolcraft, in 1821, who did not get to the Desplaines in his boat. Kennedy, to whom the same statement will apply. Joutel's men, who left their goods at Chicago, because there was too little water in the river, and what little there was was frozen.

Here, too, I think should properly be considered Charlevoix who did not try to force his way along the Desplaines because the river being a mere brook he was informed that he would not find water enough for his canoe.

It appears then that there are seven instances in all, including Tonty, concerning whom there is no certainty whatever. Of the six then, leaving Tonty out of view, three did not succeed in forcing their boats through. One did not try because he was told there was too little water for his canoe.

One succeeded in part. That is, he left most of his
4292 goods behind and he forced one boat through or down, at any rate, the Desplaines route. To these latter two then, Dr. Thwaites' generalization "perhaps were forced to make some carriage here and there" will apply. St. Cosme said one must always make a portage from Isle la Cache to Mount Joliet, seven leagues. His own experience was that he made a portage of fifteen leagues or more. Hubbard said that from Isle La Cache they carried their goods on their backs most of the way. Hubbard succeeded, and St. Cosme succeeded in part; that is, he left most of his goods behind and forced one boat through.

As to the last conclusion of Dr. Thwaites to the effect that the length of the carriage varied greatly from season to season and year to year, according to the stage of the water, I agree entirely with his conclusion and will point out only something as to the length of the variation. It varied from nothing at all to fifty miles or more.

4293 I now direct my attention to McLaughlin's conclusion as to the Desplaines, transcript, page 785-786 (Abst., 327), where he says:

> "I should say that during that period (the period being from the time of Charlevoix to the year 1825) the Des Plaines river was used with apparently considerable frequency as a route of trade and commerce; that at certain seasons of the year it seemed to have presented some difficulties, other seasons of the year it was a well-known means of communication between the lake region and the lower Illinois and Mississippi."

The authorities which Professor McLaughlin used and on which his conclusions must obviously have been based are as follows:

Charlevoix, record 760 (Abst., 316); Hutchins, record 762 (Abst., 318); Heward, record 763 (Abst., 318); Darby, including the St. Louis Enquirer editorial, record 766 (Abst., 319); Kinzie's letter, record 768 (Abst., 320); Hubbard, record 769 (Abst., 321); Cass, record 772 (Abst., 321); Schoolcraft, record 774 (Abst., 322); Forsyth, Table of Distances, record 776 (Abst., 323); Long, record 777 (Abst., 323-324); Graham and Philips, record 779 (Abst., 324); Keating, record 780 (Abst., 325); Childs, record 781 (Abst. 326); Drown, record 782 (Abst., 326); Flint, record 784 (Abst., 327).

His answer was based on the foregoing authorities, fifteen in all of which three only give first hand accounts of actual use of the Desplaines. These three being Heward, Hubbard and Child.

4294 I would observe then that Professor McLaughlin being limited to these fifteen sources of which only three were direct, seriously crippled him in drawing the conclusions which he drew concerning the character of the use of the Desplaines. For example, he had Schoolcraft's general statement submitted to him, and from that he drew certain conclusions; but these conclusions are overturned by the specific experience of Schoolcraft with the Desplaines, which was not submitted to Professor McLaughlin for consideration.

Again, he had Hutchins' general statement of some four lines in length which is negatived in one specific case by the experience of Kennedy recounted in the same book. I suppose it is not necessary to repeat what Kennedy's experience was.

I would observe further that his conclusion, as I have pointed out, being based mainly on second-hand authorities, these are open to errors which I believe I have already indicated; first,

that they speak generally of a route of travel from the lake to the Mississippi by way of the Chicago-Illinois; or, second, that they are subject to the error more or less commonly diffused, that the communication by this route was easier and more frequently used than in fact was the case.

4295 It may be true that this was a route of trade and commerce, without its following necessarily that this trade and commerce navigated the Desplaines river in boats. It may have been carried on sledges as in the case of La Salle's passage down the river; or on men's backs, as St. Cosme and Hubbard and others point out; or in wagons or carts as Graham and Philips show. Or in the case of travel, the travel may have been—I mean to say the means of transportation,—horseback. For example, the passages of Tousey and Schoolcraft. Or, they may have gone on foot as in the case of LaSource; or possibly the boats may have been propelled on rollers as in the case of Hubbard. Or finally, in the case of birch canoes which might weigh as little as forty or fifty pounds, the men might possibly have walked and carried the canoes on their backs.

He says that at certain seasons the route seems to have presented some difficulties. I observe with reference to this conclusion that it is weak in two respects. One I have already noted, that Professor McLaughlin did not have at his disposal for the purpose of consideration, many of the accounts which present the difficulty or the impossibility of using the Desplaines, in the strongest light; and secondly, this conclusion does not adequately interpret in my opinion some of those he did have.

4296 I will call attention, for example, to Graham and Philips' report, which shows that at time there was a fifty mile portage; to the appendix to Hutchins, giving Kennedy's experience; to Charlevoix, showing that there was not water enough to float a canoe, or at least, that he was so informed and shaped his action with reference to this information; to Schoolcraft's account. This was not submitted to Professor McLaughlin, however, and so he cannot be held responsible in any way whatever for it,—of his own total failure even to get to the Desplaines in a canoe.

Mr. Scott. I will ask you now, Dr. Quaife, basing your answer upon your examination of the sources to which you have referred in your testimony, what your own conclusion is as to the use of the Desplaines river during a period concern-

ing which you have testified, and as to its capability for use, as shown by those sources?

Mr. CORNEAU. I again object to the capability of use.

The sources show that the Desplaines is subject to great fluctuations, from a depth of six feet and width of a mile or even more, to a dry or nearly dry river bed. That for a short time in the spring it was flooded, during which periods boats of several tons burden might float upon it. La Salle said this period was from fifteen to twenty days in duration; 4297 that for a somewhat longer time and that when the stream was raised by rains, canoe navigation was pos. sible.

As to the historical use made from 1763 to about 1830, the accounts vary greatly, depending on the season and the state of the stream at the time in question. There are many general statements which seem to indicate that there was a highway of trade and travel between the foot of Lake Michigan and the Mississippi by way of the Illinois and the Chicago-Illinois rivers. Much less frequently do these general refer- 4298 ences even mention the Desplaines. It is fair to suppose that the Desplaines was navigated at such time as it offered an easier passage to the Illinois than was presented by other routes or other methods of transportation.

The vital question involved concerns the actual use made of the Desplaines. Of the general references many throw no light on this; many others con be shown to lack the proper basis in fact. All should properly be interpreted in the light of such specific accounts as we have of the use of the Desplaines, or of use that would have been made of it if possible, or if deemed feasible. Of such sources the number is very small. Professor Alvord cited fourteen direct references of actual use in a period of 250 years. With these should properly be considered such reports as those of Cass, in 1827, Charlevoix in 1721, Kennedy in 1773, Schoolcraft and Cass in 1821, the men whom Joutel reports concerning in 1686, and Keating's report of Lieutenant Hopson's passage prior to 1823. An analysis of these—approximately a score in all—and of the general reports in the light of what these reveal, shows that the river was sometimes navigated by canoes, and in a few instances, and in times of spring flood, by pirogues or Mackinaw boats; the chief difficulty to its passage in the season indicated arising from its excess of water and 4299 swiftness of current. That for the remainder of the year, aside from the winter during which time it was

ordinarily frozen over, such boats could as a rule be floated along the Desplaines, if at all, only with great difficulty and subject to portage much of the way. That much of the time boats could not be floated down the Desplaines, it being necessary to portage all the way from the Chicago to the Illinois river and at times even further. But at times, rains might raise the river so as to make its passage in canoes possible.

Finally, the careful historian would naturally seek to correct or confirm the judgment based on these various historical sources, by the experience of those who constructed the Illinois and Michigan Canal; and by the facts collected by engineers and others who have studied and observed the Desplaines river and valley in more recent times. Only in the light of this information could he safely attempt to formulate a definitive judgment as to the navigability of the Desplaines. I have not had opportunity to study these things with the requisite degree of care and thoroughness, but such knowledge as I possess concerning them, tends to confirm me in the conclusions I have above expressed.

4301 I desire to make certain corrections in my testimony in this case. I drew the conclusion from a study of Long's report of 1817 that the expedition took place in the spring of 1817. I feel that that conclusion is not necessary and modify my testimony to that extent. The date of
4302 report is March 4th, 1817, and considerations as to the season and climate and so forth, make it seem to me not at all necessary to infer as I did on my first study that he made the actual survey that spring. I now turn to volume entitled (reading):

> "Account of an Expedition from Pittsburgh to the Rocky Mountains, performed in the years 1819 and '20, by Order of the Hon. J. C. Calhoun, Sec'y of War: Under
4303 the Command of Major Stephen H. Long. From the Notes of Major Long, Mr. T. Say, and Other Gentlemen of the Exploring Party. Compiled by Edwin James, Botonist and Geologist for the Expedition. In Two Volumes, with an Atlas. Vol. I. Philadelphia: H. C. Carey and I. Lea, Chestnut Street. 1823."

The reference is in Volume 2, page 335, and is an account of the country between the Ohio, Mississippi and the Lakes, and of the rivers of most note in this plain or rolling country. Page 335 (reading):

> "The rivers of most note within this region, are the Wabash above the hilly country, before described, the

Kaskaskias, Illinois, Rock and Wisconsin, tributary to the Mississippi, the Fox of Green Bay, the St. Joseph of Lake Michigan, and the Maumee and Sandusky tributary to Lake Erie. These rivers are all navigable for boats of ten to fifteen tons burden when swollen by spring freshets, but during the greater part of the summer and fall, they have not a sufficient depth of water to be navigable for boats of burden, and in winter their navigation is entirely obstructed by ice. The spring freshets, consequent to the melting of the snow and
4304 ice, usually take place in the month of March, the southerly streams being open for navigation much earlier than those in the north."

This passage agrees well with what La Salle said about Desplaines. The Desplaines is not mentioned by name in the passage, being considered under the heading of the Illinois. The passage bears on the argument made in this case as to trade by way of the Illinois and Desplaines rivers, from 1764 to the time of the publication of the St. Louis Enquirer editorial, and points out that while the Illinois is navigable in spring freshets in March, that these rivers are during the greater part of the summer and fall lacking in sufficient water to be navigable for boats of burden, and in the winter their navigation is entirely obstructed by ice. That is, the thousands of boats mentioned in the editorial must have made their passage, so far as we are to accept this statement at any rate, during a small part of the year and the weekly average must have been
4305 correspondingly higher. Long and other gentlemen engaged in his expedition, assisted in compiling the work and revising the manuscript for the press. Their own contributions were put into it, without calling special attention to the fact. To show Long's responsibility for the portion I just read, I read from the preface (reading):

"In selecting from a large mass of notes"—and I should say that this preface is by Mr. James, the compiler of the volumes—"and journals the materials of the following volumes, our design has been to present a compendious account of the labors of the "Exploring Party," and of such of their discoveries as were thought likely to gratify a liberal curiosity. It was not deemed necessary to preserve uniformity of style, at the expense of substituting the language of a compiler for that of an original observer. Important contributions of entire passages from Major Long and Mr. Say, will be

recognized in various parts of the work, although we have not always been careful to indicate the place of their introduction. Those gentlemen have indeed been constantly attentive to the work, both to the preparation of the manuscript and its revision for the press."

4306 At a certain point in my testimony I said in effect that Schoolcraft said that traders had said that a canal was necessary to Mount Joliet, a length of thirty miles. That allusion of mine, is not strictly correct, and I read from page 332 of Schoolcraft's Travels in the Central Portion of the Mississippi Valley, to stand as a correction of that statement (reading):

"We have, however, seen its channel, at a sufficient number of points, to determine that it has several long and formidable rapids, which completely intercept the navigation at this sultry season:—a remark that has
4307 been confirmed by meeting several traders, on the plains, who had transported their goods and boats in carts from Chicago creek, and who informed us, that they thought it practicable to enter the Illinois at Mount Joliet. This would lengthen the portage to about thirty miles, but it has been perceived that we ourselves began it, far below the last mentioned point."

Schoolcraft was talking about a canal. The traders evidently expressed the opinion that it would be practicable to enter the Illinois at Mount Joliet, saying nothing about a canal.

To complete the identification of Carte Particuliere, it appears on transcript 4218 (Abst., 1589). I have volume 6 of Chatelain's Atlas, described in my former testimony, and procured from the Library of Congress. I am informed
4308 by authorities of Library of Congress that first and second editions are identical. They sent me the second. This an atlas, historical and geographical, ancient and modern of the world, volume 6, facing page 90 appears, the "Carte Particuliere du Fleuve, St. Louis," etc., the identical
4309 map introduced into the case by complainant's witness.

Facing page 82 of this volume a map shows Canada, and something of New France, that is, the Great Lakes and a portion of the present United States to the Ohio river on the south. The region of the modern Illinois and the Great Lakes is very similar to Von Keulen's map heretofore introduced by me. (Trans., 4205; Abst., 1584; Appendix, ...) The Illinois is shown as rising far around to the east or northeast of the sources of the St. Joseph river; the Chicago river is

shown as flowing in a northerly direction from its source to its entrance into the lake. No Desplaines river shown. This map not an exact copy of Von Keulen's map, but very similar.

4310 The word "portage" appears where we would expect to find the Fox-Wisconsin portage. Waterway apparently is continuous from the Mississippi to Green Bay.

There is a portage from a river flowing into the eastern end of Lake Erie to a river marked the Wabash; which I take to be the Ohio river as we use the term to-day. The Ohio or Wabash flows about parallel and very close to the southern side of Lake Erie. No portage is shown from the Chicago to the Illinois. The title indicates the map is based on recent observations and on divers memoirs and manuscripts. The volume was published in 1719.

Whereupon said map was offered in evidence.

(For copy of said map, see appendix, page.....)

I call attention to this map and others as a mere compilation. The authorities on which it is based not indicated. I call attention to the groundlessness or invalidity of it as a historical source.

4311 Facing page 90 is a third map, or set of views, inscriptions and explanations. It is a sketch of America, the view of the canoes in the upper left hand corner, is taken from Lahouten. (See Thwaites' Edition, volume 1, page 80.) I have not seen that the volume credits Lahontan as a source.

4312 A fourth map, facing page 91, shows North America, approximately as far west as the Rocky Mountains, south to the Gulf of Mexico, and a portion of the Gulf of Mexico and Northern Mexico as we would use the term to-day. For Illinois and region, this is apparently exactly the Von Keulen map. The Illinois is found rising far over toward the eastern side of the southern end of the Peninsula of modern State of Michigan; a little distance to the west of the western end of Lake Erie. The Chicago river rises in northern Indiana or southern Michigan some distance to the southeast of

4313 Lake Michigan, and place Chicagou, as on Von Keulen map, is location of modern Fort Wayne. There are other features here that lead me to think that this is merely a reproduction of the Von Keulen map, but will not take time, unless called upon, to put them into the record.

Whereupon said map was offered in evidence.

(For copy of said map, see appendix, page .....)

Referring again to the third map facing page 90,

the views of the savages and the village may be seen in Lahontan, Thwaites' Edition, Volume 2, page 430, and the scene representing the courtship and marriage customs of the Indians appears in Lahontan, Volume 2, page 492, Thwaites' Edition. The views representing the sickness and death of the savage, are from Lahontan, Vol. 2, page 524, of Thwaites' Edition, and the hieroglyphics are from Lahontan, Thwaites' Edition, Vol. 2, page 720.

4314 The fourth map, facing page 94, being a series of sketches and views, and several coats of arms, are taken from Lahontan, Vol. 2, page 686, Thwaites' Edition. The buffalo in the upper left hand corner, is from Hennepin's New Discovery, Vol. 1, page 146, Thwaites' Edition, and the view of Niagara Falls is from Volume 1, page 54, Thwaites' Hennepin.

I again call attention to the point, that one should use these early maps and charts with caution, and in view of the remarks I have been making about this map, the utter worthlessness from the point of historical validity of such a collection must appear.

4315 These maps and charts are drawn largely from Hennepin, Lahontan and Von Keulen. The whole world is described in the work, and other similar sources must have been relied on, hence, the danger of using such maps at all.

To further identify the account of Michigan Pioneer Historical Collections of the inquiry held on Lieutenant Cadotte, it is taken from the Haldimand Papers. 9 Michigan Pioneer Historical Societies shows that a representative was sent to Ottawa, Canada, to examine the Canadian archives, and as a result the society obtained possession of copies of these documents, and began the publication of them in Volume 9,

4316 and continued it through Volume 10. The Court of Inquiry on Lieutenant Cadotte, was taken from the Haldimand Papers, as found by the representative of the Michigan Society, in the Canadian archives at Ottawa.

J. Watson Webb, was a journalist, born in 1802, died in 1884; entered U. S. Army in 1819. Resigned therefrom in 1827, having held offices of minor rank during entire period.

4317 During this period he was stationed at Chicago for some time. Hence, the knowledge of Chicago referred to in the letter cited. 1827 became editor of New York Courier; 1829 purchased Enquirer, consolidated the two and published them until 1861, when they merged into the World. Advo-

cated principles of Whig party during its existence, when it was one of the influential journals of America during that time. Senate objected to his appointment as minister to Austria in 1849; was minister to Brazil from '61 to '69. Served in connection with the affairs of Mexico and France and United States, when French under Napoleon II was seeking to establish empire in Mexico; declined a mission
4318 to Turkey in 1861. Declined appointment as Brigadier General in northern army in Civil War.

The letter introduced as part of manuscript collections of Chicago Historical Society, written by Webb to John Wentworth, when latter was engaged in investigating early Chicago history. Gives account of conditions at Chicago when Webb was stationed here. Refers to a biography of himself by Andrews. There was objection to the reference I have read to Colonel Daniel M. Parkinson. Parkinson was born in Tennessee in 1790; moved to Madison County, Illinois, 1870.
4319 Sangamon County, 1819; moved to Galena, 1827; was there at the time of Winnebago outbreak, in which connection I cited Parkinson; enrolled in company formed by General Cass, on that trip which was under discussion, for service in Winnebago war. Settled in Lafayette County in 1827; was captain in Black Hawk war. Living in Wisconsin in 1855. On page 14, 2 Wisconsin Historical Society Collections, it appears his portrait was solicited by the society.

To further identify Hon. James H. Lockwood: A sketch of his life appears in 2 Wisconsin Historical Society Collections, page 98.

4320 He was born in New York, 1793. 1814-1815, in the army, came west to Detroit. Employed as a sutler. 1819, settled at Prairie du Chien. Declined appointment as judge, studied law, and lived at Prairie du Chien in 1855, when at the request of the corresponding secretary of the Wisconsin Historical Society, wrote article, "Early Times and Events in Wisconsin," appearing on page 98, Vol. 2, of Wisconsin Historical Society Collections. Promised his portrait
4321 to the society, along with such men listed on the same page as Cass, Governor Reynolds of Illinois, Governor Henry Dodge, Governor Talmadge, Governor Dewey, and others.

I wish to correct an error in detail in my testimony, transcript page 3991 (Abst., 1512), on Life of Gurdon S. Hubbard. I stated that the passage read from Hubbard, p. 121, "This incident served for a standing joke," and so forth, referred to an account of the journey up the Illinois from ePoria and on-

ward. He is actually describing a journey down the Illinois, on the return from Mackinaw in the fall rather than the return journey up the river in the spring; error does not affect in a vital way my argument.

4322 The passage on p. 121, of the Life, and quoted on page 3991 of the record refers to the trip from Mackinaw to Chicago.

4323 As to whether Delisle and DeFer referred to at transcript 4192 (Abst., 1580), are the same persons referred to by complainant's witnesses, I point out there were two Delisles, a father and a son, both of them noted mapmakers. DeFer is the same one whom complainant has cited in its testimony.

My attention is directed to Morse's American Gazeteer, refered to by Alvord on the direct, transcript page 309 to 314. (Abst., 142-145.)

4324 I have made an investigation of this work.

Morse was a geographer of considerable note. Many
4325 editions of Gazeteer published from 1789 to 1820. Treats of geography of entire world. Work a compilation. In preface expresses obligation to Hutchins, who contemplated work of same sort. Gave him collections, maps, etc. Indebted to many other words and sources for his information. Lists 49 works on which this is drawn, and concludes, "And many others of less note." Considerable part of the matter in volume selected from American Universal Geography.

Work by Morse at a prior date. In compilation of Ga-
4326 zetteer, Morse employed an assistant to do work for him. One John Lendrum, since he himself was "unwilling to divert his attention more than was absolutely necessary from his more important professional duties." Directed Lendrum and scrutinized his work, though assistant rather than himself, did work of compiling large part of volume. In preface to 1821 edition, states his geographies are sources upon which dependence for permanent geographical features of
4327 Gazetteer have been placed. His statement about Illinois-Chicago route which was put into the record reads as though from Hutchins' topographical description. It reads, transcript, page 313 (Abst., 144) (reading):

> "The Illinois river furnishes a communication with Lake Michigan by the Chicago river and by two portages between the latter and the Illinois river, the longest of which does not exceed four miles."

Same statement occurs in Hutchins, p. 42.

Comparison of pages reveals so many statements that are common to both, it seems probable that Morse paraphrased Hutchins' account, and condensed it to his own us. In his introduction to the Universal Geography of 1796, says he
4328 made free use of publications suited to his purpose, and frequently uses words and ideas of writer, though the reader has not been particularly apprised of it. On page 4, 1821 Edition, The New Universal Gazeteer, he states it impossible in work of this general nature to avoid error. Writer of necessity relies on others who often lead him astray. All that can be demanded of general geographer is diligent collection and use of best materials, then it goes on to show he has spared neither industry nor expense to accomplish this, but he is sensible of defects, and will be obliged for communications that will assist in improving future editions.

4329 This is a common sense statement and shows that Morse agrees to this extent with my estimate, that it is a compilation, not expected to be free from error. If my conclusion is correct, Morse will have whatever force attaches to Hutchins' Topographical Description, and is not properly cited as additional authority on this question.

I cite Boggess' Settlement of Illinois in this connection. On page 248 of this critical bibliography, is an account of the geography of the United States, and contiguous British and Spanish possessions by John Melish with this criticism
4330 or estimate which I read (reading):

> "A trifle over one page is devoted to Illinois. Of interest only as showing what was presented to the East at the time concerning Illinois. Melish was a professional map and gazetteer maker. His work typifies that of the geographers of the time, who described the world with marvelous audacity."

I now take up points ranging more or less over the whole discussion of cartography and maps introduced. I call attention to the map by Sanson, entitled: "l'Amerique Septentriale diviseé en ses principales parties, scauoir Les Ter-
4331 res Articques, le Canada, ou Nouvelle France, Le Mexique ou Nouvelle Espagne, Le Nouve au Mexique, Les Isles de Terre Neuve, de Californie," etcetera. * * * Relations de toutes ces Nations, Parle Sr. Sanson Geographe Ordinaire du Roy 1692."

Sanson was one of the royal geographers to the King of France. His father was a mapmaker. He was succeeded by Jaillot. This map shows the modern Mississippi as flowing

south and then southwest into the Gulf of Mexico, at a point approximately on the coast of Texas. The river is labeled "Chucagua," and bears the same name farther up in its
4332 course. There was evidently slight knowledge of the geography of the Great Lakes region at this time, and of the Mississippi. This river which I have said is marked "Chucagua" is what I take to be the Mississippi.

COUNSEL FOR DEFENDANT. We introduce this map in evidence with the understanding that we are to present photographs just as in the case of the Government.

(For copy of said map, see appendix, page .....)

Objection to the map, incompetent, irrelevant and immaterial.

Next, I call attention to Jaillot's map of 1719, C. H. S. Collection, No. 16. Jaillot is the man who succeeded Sanson and secured control of his maps and other materials. (See 5 Winsor, page 79.)

4333 This is a map of as much of North America as was known at the time. The Mississippi is represented as about as crooked as the letter S. The Western part of Lake Erie is due south of a portion of Lake Michigan. The Illinois river on this map is not connected with Lake Michigan, but with Lake Tracey or Superior by a water route running from the middle east and west of southern part of Lake Superior due south across central part of modern State of Wisconsin until it connects with the Illinois some distance to the southwest of Lake Michigan. Green Bay more fairly represents modern Lake Michigan than does the Lake of the Illinois as here designated, which is intended to represent the modern Lake Michigan.

4334 The map in these features is extremely inaccurate. Maker could have had little or no knowledge of region.

Whereupon said map was offered in evidence.

(For copy of said Exhibit, see appendix, p. .....)

Motion to strike out testimony as to this map, incompetent, irrelevant and immaterial.

The WITNESS (continuing). I now call attention to certain maps showing the Desplaines river, or what apparently stands for it, with the designation "Chicago river," or some variation of that name.

4335 Referring first to map No. 15, C. H. S. Collections, entitled, "Carte de la Louisiane et du Cours du Mississippi Drefsee sur un grand nombre de memoires entran tres sur

ceux de Mr. le Maire Par Guill aume Delisle de l acadamie R le Maire des Sciences." (Trans., 4207; Abst., 1585; Appendix, ...)

This shows the Illinois rising far over in southern Michigan, a considerable distance to east of St. Joseph river, which appears as a rudimentary stream on map, but I cite it specially because of the representation of the river which I take to be the modern Desplaines with the name "Chicago R." What is apparently the Chicago, without being named is represented, the designation Chicagou appearing in the lake opposite the mouth of the river; whether a place designation or not, shall not attempt to decide. There is no portage shown between the Desplaines, there denominated the Chicagou, and the Chicago or Lake Michigan. There is a portage between the St. Joseph and the Illinois.

4336 One is shown between the Miami and the Illinois, though the river corresponding to the Miami is not named. Also a portage between the Miami and the Wabash which is not named; between the Wisconsin and Fox; about the east end of Lake Erie, and the headwaters of the Ohio; they are marked in each case by the word "portage" printed on the face of the map. Map is dated June, 1718. The river which is the modern Illinois proceeding from the mouth towards the source has three designations along the lower side, the Riviere des Ilinois R. de Macopin and Huakiki R. The name "Rievere des Ilinois" is in part, below the junction of the Chicagou R., and the R. de Macoupin, the name "Ilinois" proceeding toward the source of the river, is directly opposite the mouth of the Chicago river, and would be cut in half by the Desplaines if extended.

4337 I now refer to, "Geography Made Easy; being an Abridgement of the American Universal Geography." * * * By Jedidiah Morse, 4th edition, Boston, 1794. Facing page 66 is a map of the U. S. of America, showing the Desplaines river, with the label "Chicagou R." It rises approximately opposite the site of modern Chicago river, flows in a southwesterly direction to its junction with the Haukiki or modern Kankakee, to form the Illinois. No representation of modern Chicago on the map. The map is not specifically dated.

Whereupon said map was offered in evidence.

(For copy of said map, see appendix, p. .....)

4338 I call attention to the map appearing on frontispiece to James Adair's History of American Indians. Shows

a river approximately the modern Desplaines with label Chicagou R.; also two smaller rivers flowing into Lake Michigan near the southern end. One may perhaps represent the north branch of Chicago. The other more likely the Calumet; no names given. What I take to be a place name, Chicagou, appears partially where these rivers flow into the lake. Date of this map is 1775. (Trans., 4208; Abst., 1586; Appendix, ...)

4339 Volume 5, p. 84, Winsor's Narrative and Critical History of America is a reproduction of Huske's map of the eastern portion of North America in 1755; sketched from Huske's Present State of North America, etc., Second Edition, London, 1755. A river, evidently the Illinois, rises at a point somewhere to the southwest of the southern end of Lake Michigan. No indication of Desplaines, unless upper portion of Illinois be taken for that. No certain indication of modern Chicago, though slight projection may be so considered.

Whereupon said map was offered in evidence.

(For copy of said exhibit, see appendix, page .....)

I now refer to the frontispiece of Volume 2 of Jeffries Natural and Civil History of the French Dominions in North and South America, published at London in 1761, a work referred to by Winsor as the most readily accessible which gives an account in English of French dominions at this time. The map shows what apparently stands for the modern Desplaines as Chicagou river. A river flowing from the northwest down into Lake Michigan at its southwesternmost point, ap-

4340 parently represents the north branch of the Chicago river, but has no name.

Whereupon said map was offered in evidence. (For a copy of said exhibit, see appendix, ...)

I call attention to map entitled "A Particular Map of the American Lakes, Rivers &c. Par le Sr. D'Anville de l'Academie R le des Inscriptions et Belles Letters et de celle des Siences de Petersbourg Secretair de S. A. S. Mgr. le Duc D'Orleans. London. Drawn & Engraved for John Harrifon No. 115 Newgate Street, June 25, 1790."

The modern Desplaines river is here labeled "R. Chicagon." There is no representation of modern Chicago, although a place named "Chicagon" is indicated at point where one might expect modern Chicago to be. There is no portage at Chicagon or at the river marked "Chicagon" in Lake Michigan.

4341 I take that to be merely a branch of the Desplaines or Illinois. Portages are marked between the Wisconsin

and Fox, and between the St. Joseph and Wabash, by the word "Portage."

Whereupon said map was offered in evidence. (For a copy of said exhibit, see appendix, ...)

I now refer to Popple's map of 1732. Complainant's witness has testified that Popple was the greatest English geographer of the 17th century, until Mitchell's map of 1755. With reference to this map, I read from 5 Winsor's Narrative and Critical History, page 235 (reading):

"Mention has already been made of the great map of
4342 Henry Popple in 1732, and of the maps of the contemporary French geographer D'Anville; but their phenomenal labors were long in getting possession through the popular compends of the public mind. We find little of their influence, for instance, in the Gazetteer's or Newman's Interpreter, being a geographical Index of all the Empires, kingdoms, islands, etc., in Africa, Asia and America. By Laurence Echard, A. M. of Christ's College, Cambridge (London, 1741). In this New York is made to adjoin Maryland; and is traversed by the Hudson, Raritan and Delaware rivers; New Jersey lies between 39 and 40° N. L., and is bounded on the east by Hudson's Bay; and Pennsylvania lies between 40 and 43°N. L., but no bounds are given."

Reading, page 474:

"In 1732 appeared the great map of Henry Popple, Map of the British Empire in America and the French and Spanish settlements adjacent thereto. It was reproduced at Amsterdam about 1737. Popple's large MS. draft, which is preserved in the British Museum, is dated 1727. When in 1755, some points of Popple told against their claim, the English commissioners were very ready to call the map inaccurate."

In connection with this last citation, I call attention to my argument as to the standing of Mitchell's map, and the
4343 claims of the English in 1755 which that map undertook to illustrate. Referring to Mississippi Basin, page 112, is a citation to a portion of Popple's map of 1732 (reading):

"Note.—The opposite cut is a section of Popple's great map of the British Empire in America (1732), showing the supposed lake and its outlet towards the west."

The adjective "great" as used by Winsor is not part of the title of the map, which immediately follows the use of the adjective, which observation holds for each of the other citations

where that adjective is used. From the same volume, p. 183, in a discussion of the "Early English on the Ohio," and the ignorance of the English of the Ohio valley (reading):

"Even the great English map of Popple in 1732 displays little knowledge of any development beyond that represented by Delisle some fifteen years earlier."

I now refer to an article of C. C. Baldwin, Secretary
4344 of the Western Reserve and Northern Ohio Historical Society, being No. 25 of this volume 1, entitled, "Early Maps of Ohio and the West." Baldwin's article cited again and again by Winsor in his various works, and Hulburt in his Chicago Antiquities; by the latter with reference especially to the subject of maps of the interior region of the United States. Baldwin tells of the auspcies under which Popple's map was produced. He says the progress, in comparison with earlier maps, was backward. Points out errors, among others that Long river is reproduced as Moingona river; the Ohio too near the lake, and other details. These criticisms refer to smaller general map at the begin-
4345 ning of Popple's atlas (reading):

"The scale on which the larger maps are drawn is very satisfactory; and the various portages showing routes of travel, are laid down with care.

"Chicagou appears with its houses and its river of that name with Fort Miamis or Ouamis, which was really located on the St. Joseph on the east side of Lake Michigan, there called Illinois."

I turn to Popple's map, the one in the atlas which shows the upper portion of the Mississippi valley from the western half of Lake Michigan and the western portion of Lake Superior on to the westward to the region of modern Dakota. At the southwestern end of Lake Michigan is a river labeled "R: Chigagou," which rises to the south approximately of the center of Lake Michigan. Goes in a generally northwesterly direction, then almost due north, to Lake Michigan, roughly at the site of the modern Chicago river. Evidently, the map maker had the Chicago river confused with the Calumet. No north
4346 branch is shown, unless rudimentary tributary of main river may be so taken, and I don't so regard it. There is a continuous water connection between the Chigagou river and the Huakiki, or Macopin river, which is a continuation of the Illinois; the lake being found one-third of the way from the Chigagou to the Huakiki in the course of this water connection. The word "portage" written in the map in three places; in the

Chicagou river itself, midway between the Chicagou and Huakiki, and near the Huakiki itself. What the portage was in mind of the mapmaker, would be rash to attempt, except that if he was clear, he seems to have thought that either there was a succession of portages extending all the way to the Kankakee or Huakiki; or possibly that the portage went the whole distance, although the representation of the lake would make that latter interpretation seem improbable.

Fort Creve Couer is represented as Fort Lewis, built by Mr. de La Salle, 1679. The same confusion appearing as in the statement of Lahontan, upon which Thwaites has commented. The name "Chicagou" appears stretching
4347 across the country between the Kankakee and the Lake at the south end of Lake Michigan, with certain houses apparently indicated.

Whereupon said map was offered in evidence. (For copy of said exhibit, see appendix, page .....)

4348 With reference to DuPratz, especially the maps which Thwaites testified concerning, and further as to the standing of DuPratz as an authority and the map which appears in his book, I call attention to Thwaites' testimony (Trans., 932; Abst., 389), where he says (reading):

4350 "The book by du Pratz falls within that class of source material which is the product of a carefully trained chronicler who stood much nearer to the event than we do," and so forth.

Further on, transcript, 934 (Abst., 390), as to the standing of the map, he stated:

"No, except that it is a very good map and seems to be a very carefully drawn map of the Mississippi basin."

At transcript 152 (Abst., 65), Alvord testified that the author DuPratz had a most excellent standing as a scholar and historian and a man of good observation. To check up the estimate, I cite 5 Winsor Narrative and Critical History, page 65, Chapter entitled: "Critical Essay on the Sources of Louisiana History" by Andrew McFarland Davis, and comment on DuPratz (reading):

4351 "The presence of Le Page du Pratz in the colony for sixteen years (1718 to 1734)"—the colony here in view is Louisiana and not Canada—"gives to his Histoire de la Louisiana a value which his manifest egotism and whimsical theories cannot entirely obscure. It was an authority in the boundary discussions."

There are two footnotes in the course of this short citation.

I now turn to the first, which is appended to the title of DuPratz' work, reading in part as follows:

> "The original edition was published at Paris in 1758. An English version, The History of Louisiana, or the Western Parts of Virginia and Carolina; containing a Description of the Country that lie on both side of the river Mississippi, appeared in London in 1763 (two vols.), and 1774 (1 vol.), in an abridged and distorted form."

The latter footnote is written by Winsor.

4352 A critical estimate of DuPratz' History of Louisiana is "American Library Annotated Lists. The Literature of American History. A Bibliographical Guide, in which the scope, character, and comparative worth of books in selected lists are set forth in brief notes by critics of authority. * * * "Edited for the American Library Association by J. N. Larned. Boston. Published for the American Library Association by Houghton, Mifflin & Co. 1902."

In the list of contributors are Professor Charles M. Andrews, Edward G. Bourne, Ralph C. H. Catterall, Edward Channing and others—men of standing and authority in the field of the literature of American history.

4353 This is regarded as a standard bibliographical guide in the field of the literature of American history; used as such by workers in that field who pretend to be familiar with the literature of American history. On page 108, of this volume is an estimate of DuPratz' Louisiana by Grace King, who has written of New Orleans and Louisiana history; evidently selected by Larned as one competent to estimate the work of DuPratz (reading):

> "One of the earliest and most useful authorities in the history of Louisiana. Coming to the colony in 1718 and remaining there sixteen years, part of the period as official physician to the royal plantation opposite New Orleans, the author had the time and opportunity to exercise his shrewd yet genial powers of observation, on the men and events about which he wrote on his return to Paris. If, when he dilates on his favorite theme, the Indians, particularly the Natchez tribe, his credulity, or his confidence in ours, appears at times excessive, and if naive gossip too often passes with him for serious proof, his genuine intention to instruct and not to deceive is ever convincingly apparent to the reader."

I turn to Volume 10, of Sabin's Bibliotheca Americana, the title page reading:

"A dictionary of books relating to America, from its discovery to the present time. By Joseph Sabin. Volume X. New York: J. Sabin & Sons, 84 Nassau Street. 1878."

Of this volume, Winsor in his Narrative and Critical History, the essay on bibliographies of American history, written by Paul Leicester Ford, says: "In bibliography Sabin & Eames stand first." At page 223, is an estimate of DuPratz' Louisiana (reading):

"Important as showing the French claims to the southern territory now occupied by several states, but claimed also by the English under the name of 'Carolana? The author resided in Louisiana fifteen years, and it is from his relation that most of the details of the life of the Natchez and other Mississippi tribes of In-
dians have been derived. Later historians have availed themselves of his materials. The plates are barbarous; indeed, the 'Monthly Review,' XIX, 296, remarks, 'They remind one of the cuts in the old 'Hortus Sanitatis.' The author appears to have been a very sensible and a very worthy man, but with very little talent as a writer. His stile is unequal and diffuse, and his work wants method."

This criticism is appended to, and has particular bearing upon the edition of DuPratz, published in Paris, 1758. Now the criticism or comment upon the 1763 two volume English edition of DuPratz (reading):

"The long preface is the work of the English editor, who informs us that he 'has left out many things that appear to be trifling, and abridged some parts of it.'
It will also be perceived, on comparison of the titles, that he has even constructed one for the work to suit himself."

I conclude from this three critical estimates of DuPratz that one need not go far in his study of this work to note what authoritative historians think about it without being put upon his guard as to the necessity of using the work with caution. Dr. Thwaites' comment, it seems to me, should be considered in the light of this information. As to the maps which appear in DuPratz, I call attention to the article on Early Maps of Ohio and the West, volume 1, of the historical collections of the Western Reserve and Northern Ohio His-

torical Society, article No. 25, by C. C. Baldwin, frequently referred to by Winsor and Hurlbut. Baldwin estimates
4357 the work of DuPratz which is under discussion. Page 16 (reading):

"A map of Louisiana, 1757, by M. LePage DuPratz and accompanying his Histoire de la Louisiana, Paris, 1758, is far behind the times. Even the Dead River is raised again and called the Grand."

Evidently there is a slight error in this statement. At any rate, in the map Thwaites used, it is called the Great river in place of the Grand river (reading):

"Lake Erie has its old form of a flight of steps. He is fully up with the times in pushing the 'Montes Apalaches' pretty well east, and making them everywhere the English boundary."

The Grand or Great river there represented flows into the Mississippi somewhere south of the Falls of St. Anthony. I judge it to be the Long river of Lahontan. The in-
4358 scription itself, is, "The Great River according to M. de Lahontan." In this connection, I call attention to Amos Stoddard's work, entitled "Sketches, Historical and Descriptive of Louisiana. By Major Amos Stoddard, member of the U. S. M. P. S. and of the New York Historical society. Philadelphia. Published by Mathew Carey. A. Small, Printer, 1812." This is referred to by Darby in his Louisiana, with approbation as being full of facts, but cast aside by Darby for the reason as he indicates that it is too voluminous for ordinary use; but that reason does not challenge the correctness of the work. Stoddard was appointed by the U. S. Government to take charge of Louisiana on its cession by the French of the U. S. in 1803. In March, 1804, took possession of upper Louisiana; stayed five years on various parts of lower Mississippi, and nearly six months on Red River. Such was his means of acquainting himself with Louisiana. It is modestly entitled "Historical Sketches
4359 of Louisiana," for he points out in the preface the impossibility of writing at that time an entirely accurate history of the region. Page VI (reading):

"These are some of the obstacles in the way of a regular and correct civil history of Louisiana. Those opposed to a complete geography and natural history of that country, are still more insuperable. All the old maps are extremely defective. The one prefixed to the work of DuPratz, is unquestionably the best."

I now turn to the map found in the 1774 edition of Du-Pratz, concerning which Thwaites testified, on transcript page 934 (Abst., 390; Appendix, ...), where he says:

"No, except that it is a very good map and seems to be a very carefully drawn map of the Mississippi basin."

I have shown what Baldwin thinks about it. Lake Erie appears as he said, as a flight of steps.

4360 The Wabash and Ohio are represented as one stream. There is no bend such as one would find in the modern map of this region in the Ohio river. It is represented as flowing too closely to Lake Erie. Similarly with the Illinois, it flows in a general westerly and southwesterly direction to its mouth with no bend at all comparable to the bend which will be found over in the central part of Illinois where the river turns from its general westerly direction more especially to the south. No Wisconsin river is shown on this map. Green Bay is prolonged too far to the south, especially in view of the connection between Lake Winnebago and Green Bay. Representation of what may be taken to stand for the modern Chicago or the modern Chicago and modern Calumet rivers and the modern Desplaines is inaccurate in certain respects clearly evident to the eye.

4361 The two rivers to the south of the Wabash or Ohio, (it is labeled with both names) which apparently stand for modern Tennessee and Kentucky rivers, are very inaccurately shown. They are labeled as the river of the Chaouanons, and river of the Cherokees. The Missouri is shown from the point where the edge of the map cuts it, flowing almost due east, slightly to the southeast, to its mouth, its junction with the Mississippi. There is no indication of modern bend in Missouri at the point approximately at the western border of the State of Missouri where it turns sharply to the east, where it flowed in general southerly direction along the western boundary of Iowa. I call attention to this point by way of comment on Thwaites' estimate that this is a very good map of the Mississippi basin.

I have here a map entitled:

4362 "A New Map of Part of the United States of North America, Exhibiting the Western Territory, Kentucky, Pennsylvania, Maryland, Virginia, &c. Also, the Lakes Superior, Michigan, Huron, Ontario & Erie; with Upper and Lower Canada, &c. From the Latest Authorities. By John Cary, Engraver, 1805."

It shows the Illinois river with the River Plein and the modern Chicago river, not very inaccurately shown, that is as to the modern Chicago river. The Illinois river flows in a due southwesterly direction without any bend from the junction of the Plein and the Kankakee to its mouth, the Mississippi. The Plein calls for comment, in that its source is given some distance west of Lake Michigan, somewhat to south of Chicago river, there being a representation as to a portage between the two rivers. Sandusky Creek is connected by a portage to the Scioto River, which flows into the Ohio. The inscription appended to this portion of the map dealing with the portage between those two streams reads:

"Portage of 4 miles. Thro' the Sandusky & Sioto lies the most common pass from Canada to the Ohio and Mississippi."

4363 At the portage between the Fox and Wisconsin appears: "Carrying place 1¾ m." "From hence by the R. to the Winebago L. 180 miles." At the portage marked "St. Joseph" from the St. Joseph river to the Wabash appears the inscription "Portage 15 miles." Between the Chicago and Illinois or Plein is simply the word "portages."

Whereupon said map was offered in evidence.

(For copy of said exhibit, see appendix, page .....)

Cross-Examination.

4363 As to whether it is my opinion that during the period commencing in the latter part of the seventeenth century and extending to about the end of the first third of the nineteenth century, men engaged in the fur trade did not pass up and down the Desplaines river in canoes, will say that in order to answer that question I suppose I would have to go over practically all of my testimony on the direct again.

4364 I should not attempt to answer that question by a yes or no answer. I have an opinion on the subject. To state it in answer to this question I should simply undertake to summarize briefly the tenor of my testimony on my direct examination, and especially my summary of the subject which was given toward the close of my testimony just preceding the adjournment, and that is briefly to this effect: that in order to understand what use was made of the Desplaines river by travelers or traders, one must go to the sources which describe at first hand the use made of such rivers, or the passages of that river. These sources show

that at times the river was traversed—the river route was traversed in canoes. At certain times it was possible evidently for those canoes to make the whole passage in the water. At other times, and this for a very considerable part of the year, just how much I would have to refer to my testimony on my direct examination to make plain, it was not possible to make the whole or even a considerable part of the passage of the Desplaines in canoes in the water of the river. As to whether or not, then, it is my opinion that
4365 during the stated period men engaged in the fur trade did in fact, pass up and down the Desplaines river in canoes, I suppose I have just answered that question. I would not undertake to answer that question by a mere yes or no, for such an answer would be misleading, in my opinion.

Q. Do you contend that men did not pass up and down the Desplaines river in canoes during that time?

Objected to, because the witness has already answered the question.

As to whether or not men engaged in the fur trade did in fact, pass up and down the Desplaines river in canoes during that period, without regard to how many times they did it, I would say in answer to that, it seems to me I have just answered it, but if counsel wishes me to do so, I would be glad to take the record and undertake to point out just to what extent and how they did use the Desplaines river.

4366 Q. That is not what I am asking you about, Doctor. I want you to state whether it is your opinion that any man engaged in the fur trade either did or did not pass up and down the Desplaines river in a canoe, up or down.

A. We have in Marquette's account of his second journey into this region a statement concerning an attempt to pass up the Desplaines river in a canoe which failed. We have in Joutel's Journal an account of the passage up the Desplaines river in canoes; I am not sure that the men were fur traders. They were the party that was returning from the lower Mississippi river region and on this immediate journey from Fort Lewis on their way to Mackinac and Canada by way of Chicago. They used canoes along the river. It took them something like twelve days to make the passage approximately 100 miles from Fort Lewis to Chicago and they pulled the canoes in the water much of the way. I do not recall whether it is made clear that they took the canoes out of the water or whether they kept them in the water the entire journey.

Speaking from memory, I do not pretend to be able to call up every one of these various instances without reference to the record, or to my votes. I recall the case of such men as Cass, who came up the river in a canoe in the summer of 1827, at a time when it was swollen by recent rains. The case of Child, who came up the river in a
4367 canoe at approximately the same period; that is, speaking as to years, and again the river was evidently raised either by rains or by reason of the spring floods. The case of Schoolcraft, who undertook to come up the river in 1821, and failed to get even to the Desplaines river in his canoe, and made the last 100 miles approximately of the journey on horseback. The case of Perrot, who came up the Illinois river in 1783. I believe he leaves it to us to infer how he got to Lake Michigan; whether he came by the Desplaines in a canoe, or whether he came by the Desplaines at all, does not appear from the account we have of this passage. The case of Fonda, who also came up the Illinois river, the exact date I am not able to give from memory, but in the early part of the 19th century, and who also leaves us to infer or deduce, as best we may, how he made the actual passage of the Desplaines. Those, and probably there are other accounts of passages up or down the Desplaines in the period which is included in the question that has been asked. For each and everyone of these, I would have to refer to the record or to my testimony in that connection, in order to give the fuller answer.

Motion to strike out the answer as not responsive.

As to my personal opinion as to whether or not men
4368 engaged in the fur trade did at any time during the stated period ever pass up or down the Desplaines river in canoes, (counsel having explained that he means by "pass up or down" to sail their canoes on the surface of the river, or in any other way, as carrying their boats across on their backs, or by wagon or by ox cart, as the case might be), I think Graham and Philips' report amongst others, makes it plain that canoes were taken from Chicago to the Illinois. I think that other reports such as Schoolcraft's account, and I might by reflecting over the matter, refer to others, Hubbard for example, although Hubbard did not use a canoe,—show that the Desplaines was used in part and in the fashion that each of these reports makes clear. I should not undertake, as I have said a moment ago, to give a yes or no answer to this question.

As to whether I want it to be understood that it is
4369 my opinion that no man engaged in the fur trade during the period counsel has stated, floated down the Desplaines river, or up the Desplaines river in his canoe, would say if counsel wants to be technical in this matter, I would say that no man ever floated up the Desplaines in a canoe, since canoes would hardly float up the stream. I do not believe my answer or my language is fairly subject to the construction that has just been upon it in this question that has been asked me. As to whether it is my view that no man engaged in the fur trade ever used a canoe, floated in the water of the Desplaines river as a means of transportation, taking the wholes Desplaines river from the Chicago portage down, including the reverse; I think Hubbard makes it perfectly plain that Batteaux were used the whole length of the river in time of spring floods. I suppose that canoes might have been used at the same time in similar fashion.

4370 Q. Haven't you any opinion on the subject?

Mr. Scott. I object. He has given an opinion. When he says "I presume," isn't that the same as his opinion? He says it is.

Mr. Corneau. I want to know if that is his opinion.

The Witness. Being asked for my conclusion from all the authorities I have examined, as to whether or not men did or did not in fact pass up or down the Desplaines river in canoes, without the aid of portages, or making portages, and taking the question to mean that they have passed the whole length of the Desplaines river in a canoe in water, will say in time of spring flood it was done certainly in batteaux in the manner in
4371 which Hubbard describes. It might have been done in a canoe I should think at the same time, or in similar fashion. I do not have in mind at this moment any instance of the passage of the entire river in canoes. My opinion, I would repeat, I have undertaken to make clear in the course of my direct examination. I cannot state that opinion by simply a yes or no answer, when it required something like a week to put it in on my direct.

As to whether in my conclusion I was speaking not merely relative to what had actually been done but included in my conclusion as to what was possible to be done, that is as to whether in my conclusion I spoke not of the result of the examination of historical sources as to the actual use of the Desplaines but as they bore on my idea of what constituted capability of use and recall that distinction, would say with-

out recalling the place in the record where I made the statement which counsel refers to that my view of the matter is set forth as adequately as I was able to set it forth at that point in my direct testimony.

4372 As to whether Mr. Scott's question to which my conclusions were directed, called for my opinion not merely as to the actual use, but also as to the capability of use, I ask to be referred to the question in the record.

Whereupon counsel for the government read the following question from page 4249 of the record (Abst., 1600):

Q. Now, Dr. Quaife, I wish you would give us your summary, based upon historical sources which have come to your attention of the use of the Desplaines river and of its capability for use as indicated by these historical references.

A. I would like to have the question repeated.

(Question read.)

COUNSEL FOR THE GOVERNMENT. I might add that I am not asking you what conclusions you have arrived at, judging from recounted instances, of the use of the Desplaines, as to its capability for use either in general at all seasons or otherwise; I am asking you merely whether or not you have a fixed opinion as to the question whether or not the Desplaines was actually used by men engaged in the fur

4373 trade during the period I have stated, in canoes.

A. Now do I understand that you are withdrawing these prior questions and putting a new one to me?

Q. Not at all.

A. I should say it is impossible to answer all the points that were included in those various questions in any one answer to that question.

COUNSEL FOR DEFENDANT. Q. You began this question by saying you might add, and therefore you added it to the question that preceded it.

COUNSEL FOR GOVERNMENT. If you mean by withdrawing the former question merely those questions about the capability of use, I regarded that rather in the nature of an explanation, but I will drop the whole thing and get around to it again. Disregarding now any distinction which may exist in your mind between the actual facts relative to the use and your conclusion as to the capability of the Desplaines river for trade, is it or is it not your opinion that during the period I first mentioned men engaged in the fur trade passed either up or down the Desplaines river in canoes?

A. I do not have in mind at this moment any in-
4374 stance of such passage of the Desplaines river other than those I called attention to in my answer a few moments ago. I do not say that there are no such other instances, but I spoke of those that I happened to be able to recall at the moment, and I think of no others at this moment. Such passage of the Desplaines river as is made then in canoes by the fur traders in the time included in the question would be indicated by my answer a few moments ago. Counsel states that I have not told what my own personal opinion is, and that is what he is after. I would conclude that in certain seasons, certain years rather, when the Desplaines was higher than at ordinary times, either by reason of seasoned spring floods, or by reason of recent rains, which had raised the water of the river, that sometimes traders passed up or down the river in a canoe, the basis of my conclusion being just such accounts as I have referred to a few moments ago.

4375 Cass in 1827 when the river was raised by recent rains, succeeded in passing along the river in a canoe. Cass was not a fur trader, however. Child at a similar time, or at any rate when the river was similarly swelled, either by a flood due to the spring season, or by recent rains, for he points out, I believe, that there were two feet of water all across the portage, and that he sailed across without regard to the channel or Mud Lake, made a similar passage. Such opinion as I have would be based upon the specific references we have. I have now been calling attention to one or two that show that in such an unusual time, or in such an unusual condition of the river such a passage might be made and occasionally was made.

In my former answer I called attention to other reports which show that at various times during the year—and I might add here, I believe I did not in my former answer,—for a large part of the year such passage was impossible; that frequently it was attempted and either given up, or else, as in the case of the Hubbard passages, most of the passage or much of it was made on dry land with empty boats put on wheels or rollers, as the case might be.

If counsel wishes to make the point that I should or must give a yes or no answer, I would say that there are many questions, and in my opinion this is one, which does so not permit of a yes or no answer.

4376 As to whether it is my opinion that the Desplaines was ever used by men engaged in the fur trade or otherwise, except in those instances of which we have specific accounts, I do not well see how one could base an opinion upon the use of the Desplaines, without having any experience or account to found that opinion on. If you are asking me to draw an opinion without having any authority for it, I would not undertake to do so. Counsel states that he is asking me for the conclusion which I as a historian, would draw from the fact that I find a number of instances recounted in which the Desplaines was actually used, as to whether or not it was used in other unrecorded instances. I do not recall that I have drawn any such conclusion in my testimony. I should say that the historian must base
4377 his conclusions upon the evidence that he is able to find, dealing with the subject which he had in hand, and my conclusion or conclusions as to that whole matter I set forth as adequately as I was able to in my direct testimony. By that whole matter I mean to say my conclusions as to the use of the Desplaines river, based on the various historical sources which the witnesses for the United States and other witnesses including myself, in this case, have brought forward.

Being asked to say whether or not, in my opinion as a historian, the Desplaines river was used at times when we have no record of such use, I should not care to venture an opinion upon a topic upon which I have no record whatever, no evidence whatever.

I am asked, basing my answer entirely upon the evidence which I have given, or upon the authorities to which I have referred in my direct evidence, if I now state that I can arrive at no conclusion on such facts to to whether or
4378 not the Desplaines river was used at other times than
4379 those of which we have specific accounts; my conclusion as to that I pointed out as adequately as I could in the summary, and possibly in other places, too, of my direct testimony, being to this effect, and here I shall undertake to summarize briefly from memory, that there are a large number or a considerable number at any rate, of accounts of the use of the Desplaines river and passage from Lake Michigan to the Illinois and Mississippi by way of the Desplaines, which oftentimes on the face of things are incorrect. Oftentimes by careful examination we are able to determine that the author did not have any first hand knowledge of the thing

he was talking about; and those statements must be interpreted in the light of the knowledge we get of the use of the Desplaines river in the specific accounts, first hand accounts of the passage of the river, whether in boats or on dry land, as the case may be; and my conclusion as to the whole matter I set forth as adequately as I could in my direct testimony in this connection.

4380 Being asked if I as a historian, have to find a specific account of the use, before I believe that the Desplaines was used, will say I would undertake to weigh and consider, in trying to come to a conclusion upon such a question, all the evidence that I could find or had available which seemed to me to throw any light upon it.

Being asked if, having in mind all the evidence which I have seen, and weighing it as a historian, I arrive at the conclusion that the Desplaines river was never used by traders except in those instances of which we have specific references, will say I have not, and do not now care to draw any such conclusion. I should not care to draw the conclusion that it was so used. I should prefer to base my conclusion upon the use of the Desplaines, upon the passages or the records which we have.

4381 Basing my conclusion upon the evidence that is in this case, it seems to me that the question could best be answered as I have undertaken to develop the subject of the use of the Desplaines in connection with my direct testimony. I would much prefer to formulate my conclusions upon evidence that I have, rather than upon evidence that I have

4382 not. The evidence that I have examined, does not show the Desplaines was never used at some other time, and I do not see how in the nature of things such a showing could be expected. As to whether I draw no inference then, one way or the other, from the fact that the Desplaines was used in a certain number of instances, as to whether or not it was used in other instances, I suppose that the inference I might draw on that point would be about as valuable or about as valueless as the inference anyone else might draw from a study of the records and the use of the records that the historians have made that have already been put into the case. Counsel asks me to suppose that I was writing a history twenty years from now, and that I found letters or other accounts from travelers stating that they had gone from Chicago to New York on a railroad train, and that I found ten such letters. He then asks whether or not I would come to

the conclusion that other travelers had likewise gone from Chicago to New York on a railroad train; I suppose it would depend entirely on the nature of those letters. It might appear positively that no others had gone, that the road
4383 had been destroyed after those men had used it; supposing there was no evidence one way or the other throwing light on the question beyond the fact that those letters stated that they had gone from Chicago to New York on a railroad train, having in mind also what we know of Chicago and New York and the commercial connections between the two cities, what one man or individual has done, it is conceivably possible that another man or individual could do; that is to say, assuming that the circumstances do not appear to be such as to make it impossible for another to repeat this exploit. I should prefer to wait until the twenty years have elapsed and I have the letters before me before undertaking to say what inference I would draw in the case which counsel has supposed.

Being asked to have in mind all the information that I have gathered concerning the Desplaines river, the fur trade and other trade, the extent of travel, and any other facts that I can recall, and as to what opinion I come to, as to whether or not the Desplaines river was used by others than those who have left specific accounts of their use, will say the
4348 secondary, third and fourth hand accounts and others of a farther degree removed, to which I referred in one of my answers a few moments ago, state, many of them at any rate, that the Illinois river was used for purposes of commerce and some of them state, for example, Hutchins, that it was navigable to within a short distance of the Chicago river. There are then such historical sources, the worth of which must be determined in each individual case, by such critical analysis of the source as it may be possible to make; and the use that I would make of such sources and the use I have made of them in studying this question I have indicated both in my direct and in one of my answers a few moments ago, that they must be interpreted in the light of the first hand sources that we have of the actual passage of the Desplaines. The witnesses for the United States cited something less than twenty such sources, I believe, in a period of upward of two centuries or two centuries and a half. I did not in my study add materially to that number. Possibly I did call attention to some two or three additional accounts

which might be regarded in the same light as the first hand sources. From all of these accounts I undertook to gen-
4385 eralize as to the nature of the use of the Desplaines river during this period.

Being asked to have in mind the secondary authorities of which I spoke and the critical analysis of them which I have made, and as to my own personal opinion as to whether or not the Desplaines was used by men engaged in the fur trade in other cases than those of which we have specific records,
4386 will say I am not aware, or not acquainted with, so far as I know, any careful and conscientious historian who undertakes to base his conclusions upon evidence which he has not got except, and this of course is true to some extent both in law and in the study of history, that absence of evidence, of negative evidence may be taken to have a certain significance. For example, if there was no account to be found of the death of a certain man who was prominent in Chicago history it might perhaps be inferred that that man was not burned at the stake on State street in Chicago. In such light as that negative evidence may be drawn upon or absence of evidence may be drawn upon, and I believe is so used by careful historians. For the use of the Desplaines river we have, as the record will show, a considerable number of sources. That being the case I would prefer and have done so I believe in my testimony on my direct examination, to base my conclusions as to that use upon those evidences that we have. Counsel asks that I base the conclusion to which I now refer, on the same evidence; I do not see how evidence, such for example, as Hubbard's, that a certain use was made of the Desplaines river, or of St. Cosme's, that it was not used when we might expect it to have been used, or of any other of the sources that might easily be cited that have been brought into this case, may be taken to show that, or should be taken to show that the river was used at some other time or in some other way than is indicated by those sources.
4387 As to whether I then have no opinion one way or the other as to whether or not the Desplaines was used in other instances than those of which we have specific records, would say that I made no such statement that I am aware of. The opinion that I have, is that based upon the sources that I have seen used in this case, and that I myself have studied in connection with this case.

Being asked to state my opinion as to whether or not the

Desplaines river was used in other cases than those in which we find specific accounts, will say I suppose if Mr. Cass could come up the river in 1827 in a canoe, it is conceivable that somebody else may have come up the river that same day or days in a canoe. Mr. Cass has left a record and others have left a record of this passage. I do not know that there is a record of the passage at the same time and in a similar manner by others. If you want to suppose specific instances such as that I suppose I can base an answer on such specific cases.

4388 Counsel states that he does not want a suppositious case, but wants my opinion as to whether or not others did do it. It seems to me I just answered that question. I might suppose a thing might be possible or conceivable without having any evidence that the thing had been done. For example; that another man than Mr. Peary could go to the North Pole, without having any evidence that another man had gone there.

Q. You have certain facts which you have examined, certain sources of information; those are speaking roughly, I won't take the time to be accurate, that you have found there was a river there; you have found that there were people in this country engaged more or less in trade; you have found that in certain cases men have used the river and have left accounts of that use. Now having in mind those three principal facts together with such others as you may have found also, do you or do you not conclude yourself that the

4389 Desplaines was used in other cases than those of which we have a specific record?

A. To draw a conclusion for the purposes of this question —for example, Marquette's Journal of his second expedition, shows that an attempt was made to use the Desplaines river in a canoe, but that it failed.

If Marquette had never come to this region, I suppose we would have been in ignorance of that attempted use of the Desplaines which he describes in that journal. It is supposable, I should say, however, that the use or attempted use of the Desplaines would have been made just the same whether or not Marquette had been here to record it or not. I suppose it is conceivable and this I think I have already stated, that it may have been used, or that attempts and failure to use it may have occurred at other times. As to whether I have any opinion as to whether or not it is a fact that I

have arrived at any conclusion from the historical sources and knowledge to which I have referred, it seems to me I cannot throw any further light on your question than I
4390 have already done. I have an opinion that, for example, the trader or the man whoever he was who undertook to come up the Desplaines in 1675, may have made that attempt without our having any record or knowledge today that he did so. That others may have done or have attempted to do the same thing without a record having been handed down. I, however, in drawing any conclusions as to the Desplaines river and the use of the Desplaines river in this 200 year period, prefer to base those conclusions on what I know rather than on what I do not know.

Counsel states that he is not asking me what I prefer to do, but that I now come affirmatively to a conclusion as to whether or not the Desplaines river was used by traders in other instances than those of which we have specific record. I suppose a man might draw an inference or deduction that it was. Being asked if I draw such an inference or deduction that it was not, I think I have not done so, so far as I recall. As to whether the Desplaines river was,
4391 or was not used at all at other times than we have the recorded account of, I would suppose as a matter of inference and observation that that may have been the case. It seems to me that I have completely traversed the ground of this question.

Being asked what my inference is, and whether I infer such a thing, would say that I believe counsel for the United States have pointed out already in this case in the course of the cross-examination of one of the witnesses who preceded me, that it is a difficult thing to establish a negative proposition. It seems to me that this question involves the same principle, that I am being asked to establish a proposition in the absence of evidence. I have shown I think, in my answers that such use of the river may have occurred without any record of it having been left. I might come to a conclusion on that matter which would be based upon inference and deduction. It might be a valid one or it might not.

4392 Being asked to come to such conclusion, would say I would point out, as I did a few minutes ago, that the surgeon or his assistant would doubtless have made the trip in 1675, even though Marquette had not taken the trouble to have made the attempt to make the trip, or even though

Marquette had not taken the trouble to record it for our knowledge, perhaps I should say. As I said at another time, someone perhaps might have followed Cass up the river in 1827 without any record having been preserved of that thing. Many things may happen without records being kept of them, or if those records are kept, they may not be available for the student of the period or the fact under consideration. For example, many ball games are played which are not recorded; many other ball games are recorded in the columns of the daily papers and perhaps elsewhere.

Being asked to have in mind those possibilities and to make up my mind and announce a conclusion on the subject if I can do so, as to whether the Desplaines was used without any record being preserved of such use being made, I would think that that would be a probable deduction or inference; that
4393 would be as certain as I would care to make it. Being asked if that is my opinion of the matter, will say I think I have stated substantially that, or rather what my opinion is in these answers. As to whether that is the most accurate information that I can reach as to what the actual fact was,—that it was probable, will say it seems to me that I have stated as fully as may be, my opinion as to this matter, that it is a deduction that is warrantable and may even be probable that there was use of the Desplaines river, without our having a record of such use.

4394 Being asked as a historian whether I do, or do not regard that as a necessary deduction, would say, as I have been trying to point out, that it is a warrantable and a possible and presumably a probable deduction. As to the deduction which I actually make as to whether or not the Desplaines was in fact, used in cases of which we have no specific account, would say I do not think I have made any such deduction. Being asked to do so, will say I might form an opinion without being able to prove it. It seems
4395 to me I have already given that opinion thus far, that there are times we know when the river was used where, by chance as it were, we get the record of that use, and it is probable and possible and perhaps likely that it was used at other times without our having that record.

Q. Now which do you think it was, possible, probable or likely?

Mr. Scott. I object; the witness has said it was all three, and therefore, there is no occasion to ask him which.

A. Without meaning any disrespect of counsel whatever,

it seems to me I have fully covered that question. If counsel wishes me to make a positive statement as to negative evidence, I do not care to make it, preferring to base my conclusions upon the evidence that we have as to the use of the river.

Q. I want to know what conclusion you in fact, arrive at?

4396 Mr. Scott. I object, that the witness has stated his conclusion.

With reference to whether or not the Desplaines was actually used in other instances than those of which we have specific accounts, I might presume that it was. I am not prepared to say that it was in the absence of evidence to that end. I think one might draw stronger inferences perhaps; he might not be able to prove such inferences. I think that he is playing safe, as I believe Professor McLaughlin put

4397 it, to trim your statement to your evidence, and the careful historian would do that. For example, Mr. Winsor made a certain statement about the route which Marquette took on his return from the Illinois country to or in the direction of Mackinaw on this second expedition. It appeared later when he came to explain the reason for that statement, that he had purposely left out details and put it in a general way because he had no positive evidence that justified him in going into details. It seems to me there is exactly a case in point, or an illustration of the point under discussion

4398 here. The stronger inference that I had in mind when I made that statement was this, or to this effect, that one might say that it was likely; perhaps he might say it was very likely that such use of the river was made concerning which we have no record. The reasons for that and the possibilities of that I have pointed out in several of my various answers that have been made.

Q. Doctor, you have examined various sources of historical data; you have subjected many of them to critical analysis; you have submitted many of them to critical tests; you have become pretty thoroughly familiar with all the facts that we have here with reference to the actual use of the Desplaines; now will you state just what inference you draw as to whether or not the Desplaines as actually used in other cases than those of which we have recorded accounts?

Mr. Scott. I object, that the witness when he said he presumed it was, has fully answered the question.

4399 A. If counsel wishes me to repeat again the answers I have already given, I am willing to do that.

Q. I want a positive statement of your opinion.

Mr. SCOTT. Objected to on the ground that the witness has given it.

A. Counsel asked me a few moments ago to make the strongest inference that I would be willing to make, or
4400 to that effect; and as I drew that inference I have nothing to add I believe, to that answer. It seems to me it fully covers the question. As to whether or not I find myself unable to make up my mind as to whether or not the Desplaines river was actually used in other cases than those of which we have specific accounts, as to that, I would refer to the answer I gave a few moments ago, which I have just referred to in my preceding answer. I am unable to prove such use of the Desplaines river in the absence of any account of such use. I have pointed out what the inference might be, and to what extent that inference might be justified, or deduction, if that is preferred to the term "inference."

Being asked whether I made up my mind, or can make up my mind as to the inference about which I have been asked, will say I do not care to make up my mind to any further extent or degree than I have indicated in my answer.

4401 Q. Are you unable to state your opinion? Have you any opinion on the subject?

Mr. SCOTT. Objected to. He has stated his opinion.

Q. Are you unable to make up your mind as to whether or not the Desplaines river was in fact used—

A. Repeating in substance what I have already said, I am able to make up my mind to an inference which is possibly warrantable, and it seems to me may be said to be likely or probable, and that I have pointed out in my previous answer.

Being asked if I am able to make up my mind as to what the actual fact was, would say it seems to me I have answered that question.

Q. Read the question again.

Mr. SCOTT. There is no occasion for that. The witness says he thinks he has answered.

Whereupon there ensued a colloquy between counsel as to whether or not the witness had answered the question, and the necessity of going before the court to settle the controversy, at the conclusion of which, counsel for defendant di-

rected the witness that if he had given all the answer that he thought he was able to give to the question, that he was justified in not answering further on the repetition thereof.

The cross-examination then resumed and the question was re-read to the witness:

4402 A. Counsel apparently wishes me to say, and I mean no disrespect to counsel whatever, by way of a positive statement or conclusion, that the Desplaines river was used at times and ways concerning which we have no record. I have shown what seems to me to be the extent to which
4403 the historian may reasonably go in that matter. He may point out his inference or deduction. I do not see how the historian may positively assert, or if he does, how he may defend his assertion, that this particular thing occurred concerning which he has no evidence.

I have such an opinion as I have indicated by my answer. I presume the Desplaines was used in cases of which we have no record. That is as far as I would care to go.

4404 As to whether as a historian, I feel myself unwarranted in saying that the Desplaines was used in other instances than those of which we have specific accounts, I would say that it was probable that it was used in such other instances basing my statement upon the facts to which I have called attention over and over again in these various answers, and which I presume I need not repeat now. I would not care to go any further than that. It seems to me that answers your question. As to whether I can make up my
4405 mind positively, I presume I might possibly do what many of our historians or supposed historians have done over and over again, make statements upon very fallacious evidence, or upon no evidence whatever, that they are not warranted in using in the way they use it. When I say I do not care to do such a thing, I do not mean that it is physically impossible for me to make such a statement or draw such a conclusion, I mean as a historian or student of history that I prefer not to make such statements upon such evidence or lack of evidence.

Being asked to tell what I have in my mind, as to whether or not the Desplaines river was used in other instances, will say when I said I presume it was, I think that covers the question exactly.

Q. You think it was. Do you think or presume?

Mr. Scott. I object. We shall not be haggling over "pre-

sume" and "think." I submit that we are going to end that line of interrogation right here until there is a ruling.

4406 I think I have pointed out in my direct, that I did not know of any direct evidence of the use of the Desplaines river in flat boats. I have nothing in mind to add to that statement. In the sense of such use of the Desplaines, for example, as Hubbard described, the Desplaines was certainly used by other boats than canoes. Answering from memory, I understand that Hubbard and the fur traders with

4407 whom he was connected, used Mackinaw boats. The Mackinaw boat was a flat bottomed, flat sided boat with a sharp prow, and square stern, used on the upper Great Lakes and the rivers emptying into them. This definition I take from the Century Dictionary. There was a distinction between flat boats and Mackinaw boats, and that description would not correspond to the description of flat boats.

The French held possession of this country until its cession to Great Britian in 1763. The question being a general one I should of course say that they did engage in the fur trade, the question not referring to any particular region, as I take it. The French were engaged in the fur trade somewhere or other at a later time than 1763.

4408 I undertook to show by citations from Andreas and other sources that the fur trade in the main was closed to the French in the region of the Illinois, in general from about the beginning of the 18th century on. If the question means to ask whether any fur trade whatever was carried on in this region during that time, I could not give a negative answer; neither would I care to give a positive answer. I might draw a presumption or inference as to that. I have investigated the subject further than as to what Andreas said.

4409 La Salle came here in 1679, possibly earlier. Marquette and Joliet in 1673, and there were Frenchmen in Illinois at the time of their second expedition in 1667. Roughly from that date on they carried on the fur trade in this region until the early part of the eighteenth century, when French were shut out to large extent by wars with Fox Indians and others. There were French establishments in lower part of state during period down to 1763, and doubtless more or less fur trade there. Possibly there was fur-trade in northern part of state, but the general condition was well shown by the citation from Andreas, that in the main the

French were forced to abandon fur trade in this upper part of the state from the early part of the eighteenth century on.

4410 Without being absolutely certain, I presume there was not continuous fighting among the Indians during all of that half century.

From 1700 to 1750 there were French establishments
4411 in lower Illinois, and the war was being waged between these establishments and the Fox Indians to the north. Du Pratz, and I cite him for whatever he may be worth, written, in 1758, states that the Frenchmen came from Canada to the Illinois if they had business here, by way of the Illinois river route. Charlevoix came down the Kankakee in that period. I believe he points out that it was with great danger and fear and that he had more fear than he had the courage to show to his companion and to others, on making that passage. Complainant's witnesses testified that
4412 Gravier came down in 1700.

4413 Reverting to the question about flat bottomed boats I refer to Imlay, 1793 edition, page 105, where the statement is made that all rivers in this country are navigable almost to their sources for flat bottomed boats during floods and for batteaux during a great part of the year. It is evi- of state from the early part of the eighteenth century ferent or requiring deeper water than the batteaux.

My general impression is that the batteaux was somewhat similar to the Mackinaw boat, comparable in size and depth of water, but I have no definition here.

4414 I do not know what the Durham boat might have been.

I now refer to the citation from Gravier, found on transcript pages 117-118, where, addressing his reverened Father he merely states he received on his return from Michilimachinack the letter that was written to him by way of the Mississippy addressed to Father Aveneau who sent it to him at Chikagoua, from which place he started in 1700 on the 8th of September to come here. I understand he was lower down on the Illinois or Mississippi at the time he wrote this letter. If he came from Chicago to this point in 1700 assuming that the Chicago was the modern Chicago, he I should
4415 presume went down through the central part of Illinois, presumably down the usual or frequently followed Illinois river route. The date of this letter is 1700, and that is the very beginning or even before the beginning of the war between the Fox Indians and the French and Illinois Indians

on the other side, and it does not seem to me that it throws much light one way or the other on the subject as to whether Gravier made a passage down the Desplaines.

4416 Q. Doctor, if I understand you correctly, it was your opinion that during the first half of the eighteenth century there was not much fur trade passing up or down through the Illinois Valley?

A. I read into the record certain sources on which I based my opinion that the intercourse between Canada and the lower Louisiana region by way of the Illinois river route was appreciably decreased during the first half of the eighteenth century as compared with what had gone before.

4417 My opinion is that there was a lessened use of the Illinois-Desplaines river route by reason of those Indian wars, that opinion being founded upon the authorities in part which I read into the record, and on certain others which I believe have not been put in. So far as the French were concerned, those wars closed about the middle of the eighteenth century.

4418 Pontiac's war occurred shortly after the English took possession of this Illinois country. The English took possession of the country in 1763. Pontiac's war immediately followed. There was no appreciable interval so far as the English war was concerned. That covered the

4419 northwest generally. In a general way that would cover any intercourse between Canada and the Illinois country because Mackinac was taken as a part of that war. Detroit was attacked and other northwest forts taken. It would naturally interfere with trade. From memory, Pontiac's war closed about 1765.

My attention is directed to DuPratz, London Edition 1774, page 182, where he states:

> "In those countries there is a river, which takes its name from the Illinois. It was by this river that the first travellers came from Canada into the Mississippi. Such as come from Canada, and have business only on the Illinois, pass that way yet; but such as want to go directly to the sea, go down the river of the Miamis into the Wabache, or Ohio, and from thence into the Mississippi."

4420 My attention is also called to an extract from report of General Gage, dated Montreal, March 20, 1762, entitled "General Gage's Report of the State of the Government of Montreal," appearing on page 72 of Shortt and

Doughty's Documents relating to the Constitutional History of Canada (Canadian Archives), 1759-1791, already in evidence.

COUNSEL FOR COMPLAINANT (reading):

"As I cannot discover that the Limits betwixt Louisiana & Canada were distinctly described, so as to be Publickly known, I can only inform you, what were generally believed here to have been the Boundaries of Canada & give you my own opinion, which is drawn from the Trade that has been Constantly carried on, by the Canadians, under the authority, and permission of their several Governors. From hence I judge, not only the Lakes, which are Indisputable, but the whole Course of the Mississippi from its Heads to it's Junction with the Illinois, to have been comprehended by the French, in the Government of Canada.

The People of Louisiana carry their Trade up the Missouri River, and I can't find that the Traders from that Province, ever went higher up the Mississippi, than the mouth of the Illinois River, on the Contrary, the Traders from Canada, did constantly trade above the
4421 Illinois, from their Posts on Lake Michigan, even up the River St. Croix, and the Falls of St. Anthony. And it was the Trade alone of the Mississippi Indians, which made the Post of the Bays des Puants, so very advantageous. The Illinois River, tho formerly in the District of Canada, was, after some Disputes betwixt the Governor, annexed to Louisiana. A South Easterly Line drawn from the portage, betwixt the Illinois river and the waters which run into Lake Michigan will bring you to the post of Houilliatanon upon the Ouabaches fourscore Leagues down that River; Computing from that part, where the Boats are Launched, after crossing the portage of the Miamis. This was the last Trading Post belonging to Canada on that side, & was certainly the Boundary of Canada on that side. About sixty Leagues below this Post, is the Post of Vincennes, which was served by the Traders of Louisiana, and of Course, was the Boundary of that Province. This is the best information I can procure you concerning the Limits, and what I have described to you, are thought to be the real Boundaries betwixt the two provinces."

The WITNESS (continuing): I have read over this passage.

Would require further study of it before I could say I was familiar with it.

4422 My attention is now directed to Appendix No. 4 of "A Topographical Description of such parts of North America as are contained in the (annexed) Map of the Middle British Colonies, etc., by T. Pownall, M. P. London, 1176; Appendix 4 being entitled: "Extracts from the Journal of Captain Harry Gordon, Chief Engineer in the Western Department in North America, who was sent from Fort Pitt on the River Ohio, down the said river, to Illinois, in 1776." Have seen references to Gordon from time to time. I recall generally that there was such a man.

4423 The passage I am referred to is:

"Our possession of the Illinois is only useful to us at present in one respect; it shows the Indian nations our superiority over the French, to whom they can thence perceive we give law; this is dearly bought to us, by the expense and inconvenience of supporting it. The French carry on the trade all around us by land and water. First, up the Mississippi, and to the lakes by Ouisconsia, Foxes, Chicagou and Illinois River. Secondly, up the Ohio to the Wabash Indians; and even the small quantity of skins and furs that the Kuskuskies and Picarias (who are also on our side) get by hunting, is carried under our nose to Misere and Pain Court.

A garrison at the Illinois River and a post at le Baye, will partly prevent the first; and one at Massaic will, 4424 as has been said, stop their intercourse with the people on the Wabash, who consist of several nations."

I have seen reference to Pownall. Have not prepared to estimate it without further study. It will doubtless be used by historians in whatever way it seemed worthy upon a critical examination of it.

4425 My attention is directed to a letter from Governor Carleton to Sir William Johnson, dated Quebec, March 27, 1767, heretofore introduced at transcript page 3845 (Abst., 1456), the part reading as follows:

"Ever since my arrival, I have observed the Canadians with an attention bordering upon suspicion, but hitherto have not discovered in them either actions or sentiments, which do not belong to good subjects. Whether they are right or wrong in their opinion of the Indian Trade, I submit to those whom the King has

appointed to direct and superintend the same, but the unanimous opinion of all here, Canadians and British, is, that unless the present Restraints are taken off, that Trade must greatly suffer, this Province, be nearly ruined, Great Britain be a considerable Loser, and France the sole Gainer, as they must turn the greatest part of the Furs down the Mississippi, instead of the St. Lawrence.

4426 My attention is now called to Perrault, transcript page 185 (Abst., 79). The passage reading:

"That year there were a number of gentlemen from Montreal, who had stores at Cahokia; namely, Messrs. James Grant, Meyers, Tabeau, and Guillon, who had but little business, on account of their having arrived too late.

About the 15th of April, the packs from the Missouri arrived. Our bourgeois settled his accounts with M. Choteau, and received seventy-four packs of furs. His retail store at Cahokia produced 500 Spanish dollars, and 400 pounds of tobacco. We left Cahokia on the 4th of May, for Mackinac. My directions were to pass by Chicago, having one barge and one canoe, and to await the arrival of M. Marchisseaux at Little Detroit, in Lake Michigan, he having gone by way of Prairie des Chiens, to terminate his business with the Sauks."

I am familiar with that passage. I am not familiar
4427 with Gordon's journal. I do not mean I have never heard of it.

4428 My attention is further directed to Lee's testimony, transcript 3667 (Abst., 1389), wherein he quotes from the Cahokia records, paragraph beginning "To day the 24th of April, 1787," etc., then to transcript 3668 (Abst., 1390), the mention of Power of Attorney from Askins of Detroit, to Hugh Heward, and one from Askins, Leith, and Mackintosh of Detroit, and directors of the Miamis Company; and another power of attorney from certain other gentlemen to collect debts, etc.

4429 Have read Lee's evidence in connection with these powers of attorney. Do not know that I have looked at these particular things in the Cahokia records.

My attention is further directed to "Petition of LaCroix in Regard to Trade, October 29, 1785," taken from pages 575 to 577 of Cahokia's records, appearing at transcript pages 3671 to 3673 (Abst., 1392-1393).

4430 I have glanced through these various extracts.

4431 My attention is further directed to a letter from Thomas Bentley to A. S. DePeyster, dated August 20, 1780, 5 Illinois Historical Collections, pages 172, 173, transcript pages 3676-3677 (Abst., 1394, 1395). I know who Bentley was in a general way.

My attention is called to 5 Illinois Historical Collections, page 369, memorial of Francois Carbonneaux, to Congress, December 8, 1784, appearing at transcript pages 3678 and 3679 (Abst., 1395, 1396). I have read that.

My attention is directed to an extract from letter from Joseph Parker to President St. Clair, dated October 2, 1787, appearing at transcript pages 3678 and 3680 (Abst., 1395, 1396). I have read that.

4432 My attention is further directed to a petition to Congress dated June 2, 1786, in 5 Illinois Historical Collections, pages 381, 382, appearing at transcript pages 3681-3682 (Abst., 1397). Also to an extract from Hugh Heward's Journal, appearing at pages 190 to 193 of the transcript (Abst., 81-83). I am familiar with Heward. Have glanced through the record of Governor St. Clair to the President, taken from the report of the official proceedings in the Illinois Country from March 5, to June 11, 1790, appearing at transcript pages 204-205 (Abst., 87) St. Clair says:

"Up the Illinois river, up the Chicago and from thence by a small portage into Lake Michigan."

As far as he knew what he was talking about, I presume he meant the Desplaines. The passage indicates that he was mystified about the geography of the region.

4433 My attention is directed to a letter from G. S. Hubbard to Rufus Blanchard, dated Chicago, October 13, 1880, in Blanchard's "Discovery and Conquests of the Northwest, 1881." I know this work in a general way. In the sense that historians use all printed works that happen to be of interest, I would say they would use this. I am not commending Blanchard.

4436 The letter is as follows:

"CHICAGO, October 13, 1880.

Rufus Blanchard:

MY DEAR SIR—Your favor of the 11th is at hand, and I most cheerfully give you what information I possess on the subject matter of your note.

Prior to 1800 the north branch of the Chicago river was called by the Indian traders and voyagers 'River

Guarie' and the south branch 'Portage River.' On the west side of the north branch a man by the name of Guarie had a trading-house, situated on the bank of the river about where Fulton street now is. This house was enclosed by pickets. He located there prior to 1778. This tradition I received from Messrs. Antoine Deschamps and Antoine Beson, who, from about 1778, had passed from Lake Michigan to the Illinois river yearly; they were old men when I first knew them in 1818. This tradition was corroborated by other old voyagers. The evidences of this trading-house were pointed out to me by Mr. Deschamps; the corn hills adjoining were distinctly traceable, though grown over with grass.

I am of the opinion that these branches retained their names until about the time of the location of the first Fort Dearborn, and were afterwards known as the north and south branches.

My impression is that Elijah Wentworth opened his tavern on the West Side, near the present west Kinzie
4437 street in 1830, at what was then called the Forks. About this date Samuel Miller bought a small log cabin on the opposite side of the river from Wentworth's, and south of the present Kinzie street bridge, to which he added a two-story log building, finishing the outside with *split clapboards*. These two public houses were the first Chicago could boast of. Miller by his influence and enterprise, erected a bridge built wholly of logs, across the north branch, just north of his tavern. He and Wentworth being competitors for public favor, the Forks House getting the most patronage, Jos. and Robert Kinzie built stores there, and here resorted some of the officers of the Fort daily for social intercourse and '*drinks*' at Wentworth's bar. Wolves were in those days quite numerous; one had the audacity to enter in the daytime Wentworth's meat house, and was by him killed. His house had for a sign a tall sapling topped off just above a prominent branch; it extended some distance above the top of the roof, and was a conspicuous notice, to be seen from the prairie, and surroundings, that 'here was food for man and beast'; it lacked however something to hang to the branch projection, to give it character; how to obtain a proper emblem, puzzled the good landlord, as there was no carpenter or

paint shop, or citizen artist; a happy thought struck him, that Lieutenant Allen might condescend to supply
4438 the deficiency, if properly approached; this was effected through a mutual friend. The boards of a dry-goods box were obtained, from which was put in shape, under the superintendence of Lieut. James Allen, a well proportioned sign, the Indian Agency Blacksmith putting to it hinges, when Lieut. Allen took it in hand again, producing and presenting to Wentworth the picture of the slethy wolf, which was to serve not only an attractive painting, but a memorial of the landlord's valor in killing alone and unaided, of a ferocious wolf. Officers and citizens received invitations to be present at the hanging of the sign; the day and hour arriving, found assembled a majority of the people; the sign was brought forth, duly veiled with a blanket, was attached to the branch of the pole, the veil removed, and it swung gracefully, and was greeted with hurrahs from those present; in turn something else greeted the hoarse throats of friends. Thus was produced and baptised the name of 'Wolf Point.'

Besides Wolf Point was a place called Hard Scrabble, of early historic interest.

Mrs. John H. Kinzie, in her book, 'Wau-bun,' correctly describes the location as 'Lee's Place.' Mack & Conant, extensive merchants at Detroit, in the Indian trade, became the owners of this property about the year 1816. They sent Mr. John Craft with a large supply of Indian goods to take possession of it, and established a branch of their house there, the principal object
4439 being to sell goods to such traders as they could, residing throughout this country, without interfering with the interest of those traders who purchased goods from him.

Mr. Craft repaired the dilapidated building, adding thereto, and erecting others necessary for the convenience of business. He, I think, named it 'Hard Scrabble'; whether he or someone else, it bore that name in 1818.

At the organization of the American Fur Company, 1816, Mr. Astor's plan was to control the entire trade by absorbing other companies doing an Indian business. He succeeded in buying out the Southwest Company,

whose headquarters were at Mackinaw, but failed in his efforts to buy out Mack & Conant.

Mr. James Abbott, however, their agent at Detroit, succeeded in buying them out in 1820 or '21, and they withdrew from the Indian trade, transferring their Indian goods, posts and good will to the American Fur, who constituted Mr. Craft their agent here, he removing his quarters from 'Hard Scrabble' to the company's warehouse located north of, and adjoining, the military burying ground. They enlarged it and built a log warehouse, besides; J. B. Beaubien, who had previously occupied it, removing to the 'Factor House,' adjoining Fort Dearborn. Craft died in the fall of 1826, and Mr. John Kinzie succeeded him. Mr. Wm. W. Wallace (who
4440 was one of Astor's men on his expedition to Columbia River) took possession of Hard Scrabble after Mr. Craft left the place, and died there during the winter of 1827-8. From that time till the land title passed from the government, it was occupied by several families, tempoarily, among whom were the Lawton's, for a short time, and James Galloway, the father of Mrs. Archibald Clyborne.

Yours truly,

G. S. HUBBARD."

My attention is particularly directed to the passage beginning:

"This tradition I received from Messrs. Antoine Deschamps and Antoine Beson," etc.

4441 My attention is also directed to 3 Wisconsin Historical Collections, page 292, an extract from Augustin Grignon's Recollections, which reads:

"Chicago means the place of the skunk. I understood these animals were very plenty there. At a very early period there was a negro lived there named Baptist Point DeSaible; my brother Perrish Grignons visited Chicago about 1794, and told me that Point DeSaible was a large man; that he had a commission for
4442 some office, but for what particular object, or from what government, I can not now recollect; he was a trader, pretty wealthy and drank freely. I know not what became of him."

I have read those recollections. Grignon was an early resi-

dent of Wisconsin. I am not aware that he did or did
4443 not trade around Chicago. My impression is that he did not. The passage says he got the information from his brother. I believe his recollections are rather questionable authority. I think there is such a criticism. Would have to look it up. In a general way I have studied this particular recollection.

4444 There was such a man as Baptist Point De Saible in Chicago about 1794, I should say. Cannot give exact year when he ceased to live here. Don't know what his business was, and do not think anyone else does. I do not know whether he was engaged in the fur trade. I made especial efforts in the last eight months to run down all I could about this man and the sum total is exceedingly brief and largely unreliable. Heward says he was here in 1790, and evidently did some trading with him. Not fur trading, however. Mrs. Kinzie gives a traditional account of this man, which most historians copy without criticism. I would want to corroborate her statements about him before accepting them.

4445 Such a man was here perhaps two decades, about 1780 to 1800, or part of that time. Tradition says he was a half breed negro, a San Domingan, although it is questioned by some writers, and that he lived here and tried to make himself Indian chief. He was here evidently during Revolutionary war. May have engaged in fur trading, or been president of the village. Without referring to my sources, could say nothing further. Don't know whether or not he was engaged in trading.

4446 Am not ready to formulate an opinion upon that.

4447 I say he did trade, according to Heward, but speaking of a fur trader, I think Heward does not show that he carried on such trade himself. I have an impression that he may have traded.

4448 My attention is called to 18 Wisconsin Historical Collections, pages 439-440, a letter from John Edgar to George Rogers Clark, dated October 23, 1786, which is as follows:

> "SIR—I recd. yours by Express of the Eighteenth Instant and Observe the Contents of your Letter and am very happy to find that you put Confidence in me. There is nothing that I would not do to Serve General Clark, & my Country.
>
> And you may Depend on me that I will Execute your

Order or any other Orders, that you may think proper to enfaire on me, to the last title that is in my power. the inhabitants of these Villages is very much disaffected to the United States, owing much to the Michilimackinac Company, which holds a large Trading House at Cahokia for the supply of the Savages.

If any thing tourn up in the Illenois of Consequance I shall immediately give you the intellegance by Express.

I am Sir your most Obedt. & Humble Servt.

JOHN EDGAR.

N. B. This Country is totally lost if we have not
4449 Government established here soon, etc., etc., I was obligd. to give St. Ange a horse as the one he brought give out.

Kaskaskies 23d. Oct. 1786.

George R. Clark Esqr. Post Vincent."

The WITNESS (continuing): My attention is further directed to note No. 53 on page 439 of the foregoing which reads as follows:

"53. The origin of the Mackinac Company is obscure. In 1779 the majority of the merchants trading at Mackinac formed themselves into a 'General Store' to protect their goods and traders from the ravages of the Indians who had gone over to the Americans; but this association only lasted a year (until July 31, 1780)—see Mich. Pion. and Hist. Colls., x pp. 305, 367, 499, 600, and Canadian Archives, 1888, p. 61. Before the treaty of Paris had been formally signed, Mackinac merchants had established themselves at Cahokia, with a view to the Missouri River trade, and to dealings with the merchants of Spanish Louisiana; see narrative of J. B. Perrault in H. R. Schoolcraft, Indian Tribes (Philadelphia, 1853), iii, pp. 353-356. The company seems to have been formed about 1784, contemporaneously with the North West Company, and appears also to have been composed of much the same mercantile firms; although some members of the Mackinac Company, such as James Aird, Charles Patterson, and Robert Dickson were not members of the North West.

4450 The Mackinac Company operated almost entirely in American territory, from Cahokia on the south to the sources of the Mississippi on the north; and by means of St. Peters River did a considerable business in Spanish Louisiana, reaching out toward the farther Sioux branches—Yankton and Teton. They operated through

all of Wisconsin, northern Illinois, Iowa, and most of Minnesota. After the Americans took possession of Mackinac, the company continued to operate, having rights under the clause of Jay's treaty protecting the British fur-trade. The British post was on the island of St. Joseph's, but most of the merchants still maintained some kind of establishment on Mackinac Island.

4451 After the Louisiana purchase, Lieut. Zebulon M. Pike was sent up the Mississippi to warn British traders from the west side of the Mississippi; not being included in the treaty of 1794, the Americans claimed that the British had no right to enter here. He found several trading-houses, flying British flags, which were ordered to be taken down. With the growing irritation between the United States and Great Britain, the situation of British traders on American territory became more and more difficult. In 1807 a convoy of the Mackinac Company was fired upon on Lake Ontario; see Mich. Pion. and Hist. Colls., xxv, pp. 250-258. The following year, John Jacob Astor, an American citizen organized the American Fur Company, and three years later bought out the interests of the Mackinac Company, consolidating it with his own, and forming the South West Company. He is said to have accorded one-third of the stock of the new company to four Prairie du Chien traders, Robert Dickson, Joseph Rolette, Murdoch Cameron, and James Fraser, formerly of the Mackinac Company. The War of 1812-15 suspended the operations of the South West Company, which in 1816 was reorganized as the American Fur Company, and began its later and better known career. Many of its chief traders and clerks were, however, former British subjects who had learned the business with the North West and Mackinac companies. The store at Cahokia was probably abandoned when St. Clair organized the Illinois country as part of Northwest Territory (1790).—Ed."

4452 My attention is further directed to Hamilton's Life of Hubbard, page 23 and 24, the passage beginning "It was my good fortune to form the acquaintance of Mr. Des-
4453 champs"; also to a letter from Burnett, to William Hands, of Detroit, dated St. Josephs, February 2, 1790, appearing at pages 56 and 57 of Chicago Antiquities, by Hurlbut, Chicago, 1880, which reads as follows:

"Ducharme that has been here lately, says that some

of the Traders from Makina, going down the Illinois river last fall, was pillaged by a band of Poutawatamies. Let me know if you have had any news of the prices of peltries, and what appearance there is of sales."

4454 Also a letter dated May 6th, 1790, from Burnett to Hands, on page 57 of the same work, which reads as follows:

"St. Josephs, May 6th, 1790.

Dr. Hands:

This is the third letter since I saw you last fall, at La Glaize, and has not been favored with any from you. I have nothing to write you in particular at present, but only to let you know that I am safe arrived from my wintering quarters, and all very well. I have missed a very great opportunity of doing well for the want of goods this spring. About ten days ago, I sent a canoe off for Makina loaded with corn for Mr. Todd. Should not the canoe find Todd, I have wrote Mr. Barthe to receive it for him. I wrote to you about getting plough share made; send it Makina with three bushels of fall wheat, provided you have not sent it to the Aumies already. Let me hear from you by the first opportunity, and what appearance there will be of the sale of peltries.

I received a letter yesterday from Chicago, wherein it is said that nothing is made in the Mississippi this year.

I remain sincerely yours,

Wm. Burnett."

4455 My attention is directed to document appearing in American State papers, Volume 5, Indian Affairs. Volume I, page 803, which reads as follows:

"At a large meeting of the inhabitants of the county of St. Clair, Illinois Territory, where Colonel William Whiteside was conducted to the chair, and Samuel D. Davidson, Esquire, appointed Secretary:

Resolved, unanimously, that the following memorial be presented to Ninian Edwards, Governor of the Territory aforesaid, as the joint sense of the meeting, to be signed by the chairman; which humbly sheweth, that we are highly gratified with the prompt, speedy, and prudential manner in which your Excellency has issued your orders for the defense of the exposed frontiers of said

4456 country, to oppose the repetition of Indian hostilities; and that we have the utmost and incontrovertible con-

fidence in your abilities and patriotism, for our safety in the present alarming times, as the constitutional channel between the General Government and us; Wherefore, we confidently request of your Excellency to forward the annexed memorial to the President of the United States, with such statements as may appear reasonable and just, to gain the object prayed for, as we are confident your Excellency must feel and see with us, that one or more garrisons, established and defended by the regular veterans of the United States, would be of the utmost safety to the extensive and exposed frontiers of both the Louisiana and Illinois territories, in a more particular manner as the great and numerous tribes of Indians, who had the hardihood and insolence to wage war against the United States, (and, in some instances, with effect) a few years since, that by the treaty of Greenville, and other subsequent treaties, have relinquished their title to their former hunting ground, which is now transformed into substantial plantations, and are changing their habitations fast from the lakes and waters of the Ohio, down the Illinois river to the Mississippi, where, undoubtedly, it would be necessary to establish a fort, in order to set reasonable bounds to their savage fury and unprovoked disturbance; we beg leave to refer your Excellency to a view of the great and manifest benefits lately
4457 obtained by the garrison established far up on the two great rivers, several hundred miles above their junction, when, before the establishing of these strengths, there did not a season pass by but some innocent person fell a victim to savage barbarity, on both sides of the river, and we confidently believe it would have the same salutary effect, in establishing one fort or blockhouse on the first eminence above either the mouths of the Missouri or the Illinois rivers, and another in the seditious village of Peoria, the great nursery of hostile Indians and traitorous British Indian traders; we hope it will not be thought superfluous to mention, that the above request is not to gratify our pride or avarice, in obtaining military pomp to decorate our streets, or the expenditure of public money to buy our produce, but it is to keep the improving citizen in peace, on a remote region from the United States, who is now working to convert the fertile and extensive plains of the Mississippi into the fairest portion of the Union.

From different circumstances the inhabitants of this country are not in possession of a sufficiency of arms to repel any attack that may be offered; owing to the present alarm, it is not in our power to buy any, and a considerable portion of the militia are not circumstanced to buy. If your Excellency will be pleased to make use of your good office to obtain from the General Government
4458 the use of what rifles and muskets may be thought, in your wisdom, needful, it certainly would be of great service to this frontier country.

(Signed) WM. WHITESIDE,
SAM'L D. DAVIDSON."

There is no date to the letter. In the upper left hand corner of the page appear the figures 1812.

My attention is also directed to a letter from William Henry Puthoff to Governor Lewis Cass, dated Michillimackinac, June 20, 1816, appearing in 19 Wisconsin Historical Collections, pages 417 to 424, reading at page 421 as follows:

"The Indians who have lately attended here in Council from Green Bay, Prairie du Chene, etc., are now at Drummonds Island they have promised to call on their return and report what shall be said to them there, how sincere they may be in this promise, or how far their reports may be relied upon, is perhaps in some degree doubtfull, Yet I am inclined to believe much important information may be collected from them. A party (of) Wynebagoes who had left this Post from (for) Drummonds Island
4459 the day or two previous to my arrival, have since returned here and proceeded on to their Summer residence near the Green Bay. They report that the British detained one Canoe of their Young Men, until they should hear from the King, when these young men, so detained are to return to their nation with the news. Many of the traders have been extremely active in the Chicago and Green Bay Countries, in souring the minds of the Indians, encouraging the disaffected, exciting their fears and preparing them to oppose the establishment of American posts at for one year longer in their Country."

My attention is directed to the preface of this volume by Reuben Gold Thwaites, editor, who says, after speaking of the journal of Francois Victor Malhoit:

"One of the interesting features illustrated by Malhoit's Journal is the compensation created by the rivalry of the two great fur trading companies of this time; and

their final coalition into one monopoly. The heyday of the northwest fur-trade was the period of the formation and growth of these organizations, roughly covered by the dates 1778 to 1815. The documents succeeding Malhoit's account, have been selected as further illuminating this period. As in the preceding three volumes of the
4460 collections, and for the same reasons, the Editor has found it impracticable strictly to limit the range of his material to the present boundaries of Wisconsin. It has been necessary to consider the region of the upper Great Lakes as the geographical unit within which Mackinac and Wisconsin traders operated. The district was reached by two principal routes; that of the lower Great Lakes, and that of the Ottawa and French rivers and Georgian Bay. About the close of the 18th century, however, there came into common use a third route, via Lake Ontario and the portage from Toronto to the lower arms of Georgian Bay. Detroit was the natural emporium for the lower lakes route, and Mackinac for the two via Georgian Bay. After the latter stronghold fell into American hands, the British entrenched themselves some forty miles to the eastward, on St. Joseph Island. But their fur traders still resorted to Mackinac, and sent thence canoes to Sault St. Marie, and the Superior posts, to Green Bay and the Mississippi (via the Fox-Wisconsin portage), to the lesser lake posts at Milwaukee, and Chicago, and to trading stations on the Michigan rivers of Grand and Kalamazoo."

I do not recall the name of William Henry Puthuff.

From page 407 of that volume, the following is read to me about Puthuff from note 55:

4461 "Maj. William Henry Puthuff was a native of Virginia, probably from Albermarle county. Having removed to Ohio, he enlisted (1812) as a volunteer, but was (May 20, 1813) made Captain in the 26th Infantry of the regular army. In February, 1814, he was promoted to a majority in the 2nd rifle regiment, being employed in the neighborhood of Detroit, where in the summer of 1815 he was in command, and received the thanks of the citizens for his spirited enforcement of their rights—See Mich. Pion. and Hist. Colls., VIII, p. 655. Having been honorably discharged from the army, at the reduction of its force, he was given an Indian agency and stationed at Mackinac, where he arrived in the late summer, or

early autumn, of 1815. He was particularly suspicious of British influence, and his reports are stigmatized as untrue in the letters of the officers of Drummond Island —See Id., XVI, pp. 369-401. He entered upon his duties with great zeal, and was president of the village (1817-21, 1823), justice of the county court (1818), and probate judge. In 1818, he was relieved from duties as an Indian agent, but continued to reside at Mackinac, where in 1822 Henry S. Baird found him exercising kindly hospitality—See Wis. Hist. Coll., VII, p. 429. His death occurred Nov. 24, probably of the year 1823.—Ed."

4462 My attention is directed to letter from William H. Crawford to Governor Cass, 19 Wisconsin Historical Collections at pages 405 to 407, which has been read to me as follows:

"DEPARTMENT OF WAR, 10th May, 1816.

SIR—I have the honor of transmitting to you the copy of an act of Congress, passed on the 29th of April last, intended to subject the right of foreign merchants, to trade with the Indian tribes within the limits of the United States, to the absolute control of the President. It is deemed expedient that the power vested in the President by this act, shall be exercised with a view to secure to our savage neighbors a regular supply of those articles which their wants and habits have rendered indispensable. This supply must be furnished by the government, by the individual enterprise of American citizens, or by foreigners. The fund hitherto employed by the government for this object is wholly incompetent for this supply. The tribes which have been usually supplied by the traders in the employ of the North West Company, reside far in the interior to the north and to the west, and, as is generally understood, have had but little intercourse with our trading establishments, and have seldom, if ever, been visited by our licensed traders. It is therefore wholly improbable that the enterprise of American citizens will furnish an adequate supply to

4463 those remote tribes. The want of Capital in the hands of men accustomed to the trade, and who have enterprise to bear the fatigues, and brave the dangers incident to its prosecution, will, it is believed, render it necessary for the present to permit foreigners to carry on this trade, under such regulations as shall subject them to a strict observance of the laws of the United States upon

this subject; secure their exertions in maintaining peace between the Indian tribes, and this government, and between themselves; and present additional inducements to respect the laws against smuggling. The more effectually to secure these results, the President has judged it expedient to vest in the Governor of the Michigan Territory, and in the agents for Indian affairs at Michilimackinac, Green Bay and Chicago, the exclusive right of granting licenses to foreigners to carry on this trade. In the execution of this trust, you will necessarily enquire into the character of those who apply for permission to embark in this commerce. Where the character of the applicant shall not be above suspicion, a license must be refused. The charge of having been concerned in smuggling supported by colourable evidence of its truth, will be a sufficient cause for a like refusal. Licenses when granted are to be revoked for any of the causes which would justify their refusal in the first instance. Previous to the delivery of any license, the applicant shall
4464 give bond and security in a sum equal to one-fourth of the capital which he shall state upon oath, he intends to embark in the trade, which shall be forfeited to the use of the United States, upon the violation of the laws of the United States regulating trade with the Indian tribes. He shall at the same time give the description of the persons he intends to employ in the prosecution of his business. When any application for a license shall be refused, immediate notice of such refusal, and the grounds upon which it was made, shall be given to the agents to whom the execution of this law is specially entrusted by the President. It shall be the duty of the officer granting any license to give immediate notice to this department, to the Indian agents, the collectors of the customs, and to the commanding officers of posts and stations in and adjoining the Indian country, upon whom the execution of the act in question can, in any degree, possibly devolve. This notice shall contain the description of the person, his place of residence, and the amount of the capital which he intends to employ, and the number, names, and description of the persons who will be employed in the transaction of his business with Indians.

Copies of the several acts regulating trade with the Indian tribes are forwarded, to be given to the persons

to whom licenses shall be granted for the regulation of their conduct. I have the honor to be etc.

WM. H. CRAWFORD."

4465 Crawford was in the cabinet about that time, 1816. Speaking from memory, I believe he was secretary of war.

My attention is now directed to a series of letters between Major Irwin, and Colonel McKinney; letters of the former being dated Green Bay, and those of the latter Office of Indian Trade, apparently at Washington, 7 Wisconsin Historical Collections, pages 270 to 282. The first letter dated March 10, 1817, from Irwin to McKinney has been read to me to state the reason:

"Why so little business has been done at this factory during the winter; and, without going into a detail of minor reasons, I believe the principal ones will be found to be these: 1st, the admission of many British traders, who have been accustomed to do business in this quarter, and who placed themselves in the most advantageous places for business within fifty, seventy, and one hundred
4466 miles of this; 2nd, the hints given the Indians by these traders to follow them, lest the American might punish them for their recent bad conduct during the Late War; 3d, the practice (conducted secretly) of vending whisky; and 4th, the prejudices excited by the traders against our factories.

I recognize among them many who were openly and highly instrumental in exciting the Indians of our Territory to rise in arms against us during the Late War. I think, if British traders are to be admitted to trade with Indians, regard should be had to their past, or, at least, a guarantee should be given for their future conduct."

A letter from McKenney to Irwin, dated Office of Indian Trade, May 28, 1817, page 272, has been read as follows:

"Such of the British traders as you recognize as having been hostile to us during the war, report to the Agent, and transmit me copies of your remonstrance which I will take care, in case he should omit or forget to act, to hand in to the War Department. Specify in your statement that the Agent receives fifty dollars for issuing a license, and I will report upon it.

The Indian agents in this quarter, contrary to custom, exact fifty dollars from each private trader, Brit-

4467 ish or American, for each annual license, which is considered as a perquisite of office, notwithstanding they are salary officers."

My attention is next directed to a letter from Irwin to McKenney, dated Green Bay, September 29, 1817, 7 Wisconsin Historical Collections, 273, which has been read as follows:

"Several applications were made by American citizens to obtain merchandise for the purpose of supplying the wants of the Indians; and presuming it to be the intention of the Government to have the Indians supplied by them, I encouraged, after the receipt of your said letter, the application of Lewis Rouse and Thomas P. James, who incurred considerable expense in making the preparatory arrangements for that purpose.

They had, too, an assurance from the Indian Agent here that he would not license British subjects to trade where they intended to establish themselves. Mr. Rouse was to supply the Indians at or near the Ouisconsin, and Mr. James those at Menomonie River, and intended to send a person to Winnebago Lake. A few days previous to their departure for those places, information was received that a number of British traders, licensed by the Indian Agent at Mackinac, were on their way to trade with the Indians at the place to which Mr. Rose and Mr. James intended going; and a confirmation of it soon after, came in a letter from the Governor of Michigan Territory to the Indian Agent at Mackinac, informing
4468 him that he had received a letter from the Secretary of war, stating that Mr. John Jacob Astor had purchased the whole of the interest in the late Southwest Company, and wishing every facility to be given him in carrying on his trade with the Indians; in consequence of which, the Governor directed the said Agent to license all persons that the agent of Mr. Astor should name to him. Mr. Astor's agent is a Mr. Crooks, a known and professed British subject, who named to the agent at Mackinac a number of persons (all British subjects), whom the Agent licensed. Several of them came to this place for the purpose of trading with the Indians at the Ouisconsin, and other places.

This at once would have determined Mr. Rouse and Mr. James to abandon their undertaking; but they had engaged the necessary number of persons for the usual period, (six months,) and incurred other expenses. They,

therefore, determined not to abandon their undertaking, although they feel persuaded it will eventually be a bad business, as they think they are not able to cope in business with old and experienced persons, personally acquainted with the Indians, Etc.

Should they be correct, I fear it will be difficult to persuade other American citizens to undertake to supply the Indians in this quarter. Besides the British traders licensed to trade at the Ouisconsin, others were licensed by the Agent at Mackinac to trade at the Upper Mississippi and this place, at which, in the village alone, six
4469 are licensed; and all of them, with one exception, held commissions during the Late War, are influential with the Indians, and were named by me in my letter of the 24th of July last to the Indian Agent here, a copy of which I transmitted you.

The persons engaged by the American house of David Stone & Co. were British subjects; and they were, I understand, licensed by the Agent at Mackinac. Governor Clark last year directed the stoppage of British subjects entering the Mississippi; Governor Edwards requested the Agent at Chicago to prevent them from entering the Illinois. What reasons exist for allowing them to trade with the Indians in this quarter, I am at a loss to imagine.

It is well known it is not necessary to license British subjects to trade at Mackinac, as very little business is done there by the Indians; and if it were greater, the American storekeepers could attend to it. At Chicago, the Factory used to supply all the Indians in that quarter; and, it can be well established, that is is wholly unnecessary to license a single person at this place, for last year a British trader (Peter Grignon) supplied all the Indians at or near the Ouisconsin, and another (Peter Powell) those at Menomonie River; and the trade of this village was attended to by two or three British subjects, who, altogether, did not make twenty packs."

4470 Attention of the witness was then called to letter from Irwin to McKenney, 7 Wisconsin Historical Collections, page 275, which reads:

"It appears that the Government has been under an impression that the Southwest Company, of which Mr. John Jacob Astor is the head, is strictly an American

company; and, in consequence, some privileges in relation to trade have been granted to that Company, and of such a nature as to put it out of the power of any person concerned in fur companies, who, if they consulted their interest, would whilst the British possess influence over the Indians, employ none but British subjects."

My attention is now called to letter from Governor Cass to A. J. Dallas, acting secretary of War, dated June 20, 1815, set out at transcript pages 226 to 230 (Abst., 98-100), which begins:

"Sir, I had intended by this time to have submitted to you a general view of the State of Indian Affairs" etc.

4471 I have read the letter, as it appears in the record.

The attention of the witness was then called to letter from John Kinzie to Governor Cass, Detroit, July 15, 1815, transcript pages 230 to 234 (Abst., 100-102), the last paragraph beginning:

"The above statement you may rely is correct, hav-
4472 ing resided many years in the country," etc.

The government trading or factory system was inaugurated probably about 1795. My impression is that the Chicago factory was established about 1808.

Counsel for complainant then read from Johns Hopkins University studies in Historical and Political science, 9th series, 11 and 12; a Study of the Trading Post as an Institution by Frederick J. Turner, Johns Hopkins Press, November
4473 and December, 1891, page 59:

"The objects of Congressional policy in dealing with the Indians were stated by Speakers in 1794, as follows: 1. Protection of the frontiersmen from the Indians, by means of the army. 2. Protection of the Indians from the frontiersmen, by laws regulating settlement. 3. Detachment of the Indians from foreign influence, by trading houses where goods could be got cheaply."

The WITNESS (continuing): The factory system re-
4474 mained in existence at Chicago until about 1822.

I have in hand a cover of papers labeled: "Copies of letter book papers of American Fur Company at Mackinac. Gift of Estate of Mrs. M. A. Hubbard, 1909," which came from the files of the Chicago Historical Society. I translate a letter dated Michillimackinac, June 22, 1817:

"Monsier Daniel Bourasse:

I am very anxious to learn the arrangements which

you have thought proper to make with the goods which were conveyed or given to you by Mr. Rocheblave for the Southwest Company. As I am persuaded that you have not been very well treated in this affair, this is to ask you to take advantage of the first opportunity which presents itself to come here, in order that on the arrival of Mons. Buisson and his associates, we can settle this affair in the most equitable manner.

4475 Your character hardly permits me to have any bad opinion of you, but this, which is very just, you will give us by your presence here, the necessary knowledge for us to obtain our rights of these gentlemen.

Hoping for you by the return of the Baltimore, I am,

Your obedient servant,

RAMSEY G. CROOKS."

Crooks was agent of the Astor Fur Company, at Mackinac. Have seen the name Bourasse. Should not undertake to locate him further without looking the matter up. The 4476 letter would indicate that these men had business relations of some sort.

Whereupon counsel for complainant read an extract from Schoolcraft's Personal Memoirs "In residence of 30 years with the Indian Tribes," etc., 1851, pages 112 to 117, dated 1822, as follows:

4477 "Sept. 1st. Indian Trade.—Congress has provided a code of laws to regulate this, the object of which is a good one, and the provisions of the various enactments appear to be founded on the highest principles of justice and benevolence. It is still a question, it appears to me, whether some of these provisions do not merely sanction by the forms of law what was formerly done, not always well, without it, and whether the measure of protection which they afford to the tribes against the cupidity of the whites is very efficacious. It was heretofore pretended by the British traders that all this country belonged to Great Britain, and they told the Indians that the war of 1812 would settle all this. It did so; but, contrary to their wishes and the predictions to the Indians, it settled it precisely on the basis of the treaty of 1783, which ran the boundary line through the straits of Saint Mary's and Lake Superior to the Lake of the Woods. As soon as the smoke of the war cleared off, namely, in 1816, Congress enacted that British traders and capital should be excluded from the American lines, that no British

subjects should receive licenses to trade, and that all such persons who went inland in subordinate capacities should be bonded for by the American traders who employed them. This law seemed to bear particularly on this section of country, and is generally understood to have been
4478 passed to throw the Old North West Company, and other British traders, trading on their own account, out of this hitherto very lucrative branch of trade. John Jacob Astor, of New York, went immediately to Montreal and bought out all the posts and factories of that company, situated in the northwest, which were south of the lines. With these posts, the factors, trading clerks, and men were, as a matter of course, cast on the patronage and employment of that eminent German furrier. That he might cover their employment he sent an agent from Montreal into Vermont to engage enterprising young men, in whose names the licenses could be taken out. He furnished the entire capital for the trade, and sent agents, in the persons of two enterprising young Scotch gentlemen, from Montreal and New York to Michilimackinack, to manage the business. This new arrangement took the popular name of the American Fur Company. In other respects, except those related, the mode of transacting the trade, and the real actors therein, remained very much as they were. American lads, whose names were inscribed in the licenses at Michilimackinack, as principals, went inland in realty to learn the business and the language; the engagees, or boatmen, who were chiefly Canadians or metifs, were bonded for, in five hundred dollars each. In this condition, I found things on my arrival here. The very thin diffusion of American feeling or principle in both the traders and the Indians, so far as I have seen them, renders it a matter of no
4479 little difficulty to supervise this business, and it has required perpetual activity in examining the boats and outfits of the traders who have received their licenses at Mackinack, to search their packages, to detect contraband goods, i. e. ardent spirits, and grant licenses, passports and permits to those who have applied to me. To me it seems that the whole old resident population of the frontiers, together with the new accessions to it, in the shape of petty dealers of all sorts, are determined to have the Indian' furs, at any rate, whether these poor red men live or die; and many of the dealers who pro-

fess to obey the laws wish to get legally inland only that they may do as they please, law or no law, after they have passed the flag-staff of Sainte Marie's. There may be, and I trust there are, higher motives in some persons, but they have not passed this way, to my knowledge, the present season. I detected one scamp, a fellow named Gaulthier, who had carried by, and secreted above the portage, no less than five large kegs of whisky and high wines on a small invoice, but a few days after my arrival. It will require vigilance and firmness, and yet mildness, to secure anything like a faithful performance of the duties committed to me on a remote frontier, and with very little means of action beyond the precincts of the post, and this depends much on the moral influence of the Indian mind of the military element of power."

4480 Thereupon counsel for complainant read letter from the writings of Thomas Jefferson, collected by Paul Leicester Ford, Volume 9, 1807-1815, Knickerbocker Press, 1898:

"To Meriwether Lewis.

"Washington, July 17, 08

"Dear Sir,—

Since I parted with you in Albemarle in Sep. last, I have never had a line from you, nor I believe has the Secretary of War with whom you have much connection through the Indian department. The misfortune which attended the effort to send the Mandane Chief home became known to us before you had reached St. Louis. We took no step on the occasion, counting on receiving your advice as soon as you should be in place, and knowing that your knowledge of the whole subjects & presence on the spot would enable you to judge better than we could what ought to be done. The constant persuasion that something from you must be on its way to us, has as constantly prevented our writing to you on the subject.

4481 The present letter, however, is written to put an end at length to this mutual silence, and to ask from you a communication as to what you think best to be done to get the chief & his family back. We consider the good faith, and the reputation of the nation, as pledged to accomplish this. We would wish indeed not to be obliged to undertake any considerable military expedition in the present uncertain state of our foreign concerns & especially not until the new body of troops shall be raised.

But if it can be effected in any other way & at any reasonable expense, we are disposed to meet it.

A powerful company is at length forming for taking up the Indian commerce on a large scale. They will employ a capital the first year of 300,000 D. and raise it afterwards to a million. The English Mackinac company will probably withdraw from the competition. It will be under the direction of a most excellent man, a Mr. Astor, Merch. of New York, long engaged in the business & perfectly master of it. He has some hope of seeing you at St. Louis, in which case I recommend him to your particular attention. Nothing but the exclusive possession of the Indian commerce can secure us their peace."

4482 The WITNESS (continuing): Mons. Buisson is probably the same man referred to in the Hubbard letter to Blanchardas Mons. Beson. This being a French name, he might very well have mispelled it. Mr. Sarah is probably the same man elsewhere spoken of as Cerre at St. Louis. I rely largely upon the complainant's witnesses for that information.

Whereupon counsel for complainant called the attention of the witness to and read from a letter of Ramsey Crooks to Nicholas Boilvin, dated Michillimackinac, August 9, 1818, Chicago Historical Society Collection of copies of letter book pages of the American Fur Company at Mackinac, as follows:

"A species of civil war has already been too long waged by the St. Louis interest against that of the Lakes. Our rights to the Indian trade are precisely the same, and surely the men of Mackinac are entitled to equal protection and advantage with those from the Illinois Country. If we happen to be opposed in trade, I do not

4483 think it follows we should be personal enemies. It shall be my study to avoid it, and my only wish is that harmony may take the place acrimony had usurped, and let the traders fail or succeed, as their arrangements are good or bad. We ask nothing for ourselves from either the civil or military authorities of the country which we would for a moment wish to be withheld from the others. We are justly entitled to equal privileges with our opponents, and we can never consent to have them abridged or in any manner impaired.

I am, dear sir,

Yours truly,

"RAMSEY CROOKS."

The attention of the witness was next called to the passage at page 168 of the Navigator 1811:

"The Illinois is a fine navigable river, interlocking by a portage of four miles with the Chicagow, a short river which empties into Lake Michigan, through which channel the great route of the fur and peltries trade is carried on between St. Louis and Michillimackinack and the other northern lakes."

4484 Chouteau, I suppose was a member of the St. Louis family of fur traders. I do not know the detail as to this particular designation Berthold & Chouteau. I would say that the American Fur Company carried on very extensive operations in the fur trade through the Illinois region and from Mackinac, but do not think it had a practical monopoly from the time it was organized.

4485 I do not think Kinzie was engaged in trade at that time except as an officer of the government. About that time Kinzie entered the government service. Kinzie sent 4486 furs to Mackinac. It was one of his markets. I presume it is a fact that the American Fur Company were the largest fur traders in that region after 1818. And I suppose they traded throughout the northwest. According to Hubbard, from 1818 they had many posts along the Illinois river, and were trading regularly in that country, though they did not have the trade all their own way in that section. Hub- 4487 bard makes it clear they had competition. If the Kinzie & Forsyth firm are still in existence from 1818 on, and trading around Peoria, I am not aware of it. I think it was not.

4488 On page 121 of Hubbard's life, it appears that Chouteau of St. Louis invited Hubbard to enter his employ at the expiration of his engagement with the fur company. Being in trade at St. Louis, and very aggressive traders, the houses of Chouteau would not allow the American Fur Com- 4489 pany entire monopoly of the Illinois country. Hubbard also speaks of an opposition trader at Bureau Post named Bourbonais, who was supplied with goods from St. Louis, and he located there. He speaks of his contest with Bourbonais, and against him, to gain the goods of the Indians. Hubbard's life, page 23 (reading):

"Mr. Deschamps had been educated at Quebec for a Roman Catholic priest, but, refusing to be ordained, he, at the age of nineteen, engaged himself to Mr. Sara, a fur trader at St. Louis, and had devoted many years of

his life to the Indian trade on the Ohio and the Illinois river."

4491 As to whether I believe Hubbard's statement that Deschamps told him what Hubbard says Deschamps told him, this letter written in 1880 deals of events that happened over 100 years before, all of them 50 years before the letter was written. It should be subjected to careful scrutiny. Some of the statements are doubtless valid, and some are probably not. He speaks of tradition he received from Deschamps sometime after 1818 when they met.

4492 Hubbard wrote as an old man, and any historian would subject such statement appearing under such auspices to careful scrutiny. Our criticism of Hubbard's account of Cass's trip in 1827 showed that the account was full of errors in detail. My impression would be that Hubbard was probably correct in saying he received such a tradition

4493 from these men. As to whether the most active trade carried on on the Desplaines river falls between the period of 1783 and 1825, could not base an answer on these sources that have just been read me or called to my attention. Certainly not without further study and consideration. Counsel in asking me questions based on these 30 odd references that he has cited.

4494 My conclusion, transcript pages 4278 and 4279 (Abst., 1615), "As to the conclusion that the most active trade on these two rivers was in the period from 1783 to 1825 I do not care at the present time to dispute this, but I wish

4495 to examine the evidence as to what this most active trade amounted to." What I meant by that statement was this: that I proposed to take up an examination of the evidence that had been admitted as to the character of this trade in this period, and such an examination follows then my statement at that point.

As to the trade carried on on the Desplaines between 1783 and 1825, will have to have further time to study those sources which counsel has cited. Counsel has been several hours stating the question, and several weeks preparing it, and I could not answer it off hand.

4496 As to the present state of mind, I think I have not come to any definite opinion one way or the other, and I made no effort to state such an opinion in my direct testimony. I prepared for this testimony, and examination under pressure. I did not find time to sufficiently prepare myself

for that, and therefore have not a definite opinion upon it.
4497 However, I do know something about it. In that part of the record to which counsel has referred, I took Alvord's statement for what it purported to be worth, and proceeded to examine the evidence he had put into the record bearing upon that particular subject.
4498 Being asked who was the first person to use the Desplaines river, would say, supposing that Joliet and Marquette used the Desplaines river, they would be the first ones that I know of.

Q. That is what I want to get at. What is your opinion as to whether or not they used the Desplaines River?

A. I think Marquette probably used the Desplaines river on second expedition 1675. From my general opinion and
4499 impression, the account of Joliet and Marquette's first journey does not make clear whether they used the Desplaines or not. The whole trip is disposed of in few lines, leaving it open to inference or assumption as to whether they used the Desplaines. On the second trip Marquette came down the western shore of Lake Michigan to some point near southern end of lake, passed some time in a winter camp, and went down the river in early spring, in my opinion. The matter is open to dispute among historians. I believe it a fair inference that in coming up the Illinois river route in 1673, they also made some use of Desplaines. That cannot be stated with absolute certainty by anyone.
4501 The surgeon tried to come up the Desplaines and failed, assuming that Marquette is talking about the Desplaines, which I have stated to be my opinion. Concerning the first expedition of Marquette, I read from the narrative 59, Jesuit Relations, page 161:

"We therefore reascend the Mississippi which gives us much trouble in breasting its Currents. It is true that we leave it at about the 38th degree, to enter another river, which greatly shortens our road, and takes us with but little effort to the lake of the Illinois."

4502 The Illinois means Lake Michigan (reading):

"We have seen nothing like this river that we enter, as regards its fertility or soil, its prairies and woods; its cattle, elk, deer, wildcats, bustards, swans, ducks, parroquets, and even beaver. There are as many small lakes and rivers. That on which we sailed is wide, deep and still, for 65 Leagues. In the spring and during part of the summer there is only one portage of half a league.

(Footnote 41.) We found on it a village of Illinois called Kaskaskia, consisting of 74 cabins. They received us very well, and obliged me to promise that I would return
4503 to instruct them. One of the chiefs of this nation, with his young men, escorted us to the Lake of the Illinois, whence, at last, at the end of September, we reached the bay des puantz, from which we had started at the beginning of June."

4505 I based my statement that Marquette probably used the Desplaines partly on those statements. I stated it is my opinion that they probably made some use of the Desplaines. That cannot be changed into a statement of absolute certainty. It is based in part upon those passages
4506 which were just read into the record, and in part on the study other historians have made of this and other passages. There has been some dispute about this whole matter.

The passage from Marquette's journal, page 181, cited at transcript page 63 (Abst., 27), beginning with "We started yesterday and traveled 3 leagues up the river without
4507 finding any portage," etc., would be one other that I would cite in support of my opinion that Marquette probably used the Desplaines in 1673. Taking all these passages together, the question as to the use of the Desplaines is
4508 in doubt, because Joliet and Marquette had the lightest possible equipment and made light of long portages, as though they were a matter of easy accomplishment. In going down the Wisconsin, Fox or St. Lawrence river or any other, they might make portages without making any mention of the fact. In this account of their passage from the Mississippi to Lake Michigan it seems to me probable they
4509 would speak of the point where they left the Illinois, to change over to another river system. Therefore they may have made a number of portages along the Desplaines, without mentioning them. I think that is a fair matter for doubt.

4510 If Marquette was at modern Chicago, when he wrote this, I think it reasonably evident they used the Desplaines. The question in dispute is as to just where Marquette was when this was written. My opinion is that he was probably at or near modern Chicago, and probably used the Desplaines to some extent.

4512 Q. Doctor, I find this statement in the transcript: "I believe I stated a few moments ago that they did make

use of the Desplaines." I have not been able to find the exact statement to which you referred, but we may assume, may we not, that that is your opinion?

A. I would call counsel's attention to the fact that on page 4499 (Abst., 1689), I stated and I read a portion of the statement. "And my opinion is as I stated a few moments ago, that he went down the Desplaines river." Referring there to the second expedition of Marquette, the one in 1675. And that on page 4500 (Abst., 1689), referring to the first expedition, that of Joliet and Marquette in 1673, I said, "My opinion is that they probably made some use of the Desplaines river, that it is reasonably certain that they came up the general Illinois-Desplaines route," and further, omitting "I think they probably did a part of the way perhaps" referring in that last statement to the fact that they passed in part along the water in the Desplaines river.

It seems to me that I have made it reasonably clear that I think they made some use of the Desplaines river. If counsel wishes that made still plainer, I will now state that it is my opinion that on the first expedition of Joliet and Marquette in 1673, some use was made of the Desplaines river, noting however in this connection, that I, as I have heretofore pointed out, do not pretend to certainty on that point.

4513 Tonty drew a sledge along the Desplaines river. I
4514 believe the year was 1680. Tonty's first passage along the route between Lake Michigan to the Illinois was referred to in the passage at transcript page 72 (Abst., 30), which was read from one Margry, page 589, which begins:

"Seeing that nobody came, we set out with the design of making short day marches," etc. Concerning that jour-
4515 ney, there is some difference among historians as to whether he actually passed in a boat up the Desplaines. I have given it as my opinion that he did use a boat (see Transcript, page 4264, Abst., 1607.) I am not sure whether I stated to what extent on the Desplaines river at that time. The other reference was to the passage of La Salle and Tonty to the Mississippi in 1682. There is another ac-
4516 count of an attempted passage of the Desplaines by Tonty, wherein he totally failed. In the case of the trip made fleeing from the Iroquois in the winter of 1680-1681, details are uncertain as to the use he made of the river. I gave it as my opinion on page 4264 of the record to the effect that some use was made of the river at that time.

From the account of Joutel's journey, he left Fort Lewis March 21st; came to Chicago; arrived March 29th, passed up the Illinois river until he met a rapid stream which obliged him to go ashore, and then into the water, and to draw their canoe. I believe historians assume that this rapid stream was the Desplaines, therefore that they made such use
4517 of it as is indicated in this authority; Stiles edition of Joutel, page 197. It is evident, from the date and the description which Joutel gives of the passage, that this was in the time of the spring flood, that they were coming from Fort Lewis to Chicago.

As to St. Cosme and La Sourse, would say they made such use of the Desplaines as my direct examination pointed out, which was to the effect that they portaged something like 15 leagues of the way along the Desplaines. If that be using the Desplaines river, it is my opinion that they made use of the Desplaines river.

4518 Q. At transcript pages 4414 and 4415 (Abst., 1661), you stated Gravier came from Chicago to this point in 1700, assuming that the Chicago was the modern Chicago. He I should presume went down through the central part of the State of Illinois, presumably down the usual or the frequently followed Illinois river route. What is your opinion as to whether or not he used the Desplaines river in that connection?

Objection; nothing in the citation from Gravier that throws light on whether he did or did not use the Desplaines river; no basis for an opinion; incompetent, irrelevant and immaterial.

4519 A. That would have to be based upon inference and deduction from other sources.

Gravier's letter shows the date of his departure from Chicago as September 8th, 1700. The St. Cosme account indicates that the party left Chicago a year or two before, at a slightly later date in the year, found the Desplaines practically dry. That Tonty, the guide, who was probably as familiar with the Desplaines river as any white man living at that time, preferred the certainty of a nine leagues portage in advance of the effort to make the passage of the Desplaines.

The St. Cosme narrative makes it plain that the passage of the Desplaines on that occasion required a portage of from 15 to 17 leagues in length.

4520 Charlevoix letter dated September 17, 1721, ten days later in the year than the date of Gravier's passage from Chicago says they did not attempt the Chicago-Desplaines route because he received the information that at that time of the year there was not enough water for his canoe.

Hubbard's narrative of the first passage of the Desplaines in 1818, about October 1st, somewhat later in the year than Gravier's passage, shows that they had to frequently unload the boats and put them on rollers, and that they carried the goods, and that considerable time was consumed along the Desplaines to the Illinois.

I think I have stated all the direct accounts of Professor Alvord which he put into his testimony of passage
4521 down the Desplaines river. Any inference based on those accounts would, I should say, be to the effect that either Gravier did not go down the Desplaines or if he did, he went along the bank, or if he went in a boat, he found it necessary to make frequent portages, as did Hubbard and St. Cosme.

Since Gravier was going further down the river and apparently did go some distance down the river, I presume it would be reasonable to suppose that he had a boat with him, and that would furnish some clue perhaps as to the sort of passage of the Desplaines that he made. That would not be a certainty, of course, that would be obvious, but the evidence for the conclusion would be evident from my statement that probably it was some such passage as St. Cosme or Hubbard made rather than simply going on foot the whole distance.

Q. And you would infer from the evidence that he did use the Desplaines to some extent?

A. It seems to me that I have just answered that question, Mr. Corneau.

Q. I did not hear you then. Your first answer was that you did not draw any inference, and then you stated the
4522 character of the use he would have made. I want to know whether you inferred that it was such a passage, if you do so infer, of course.

A. I believe the total length of the Desplaines from the point where the short Chicago portage may be said to strike it to its mouth, or its junction with the Kankakee, is something like forty-five miles, and it is evident from St. Cosme's narrative that they portaged practically all that distance. It is evident from the Hubbard narrative that they made frequent portages, and I suppose it is also evident that the boat

was sometimes in water. I now refer to the passage down in the fall of 1818. I should not attempt to say whether Gravier's experience was similar to St. Cosme's, or similar in details to Hubbard's. I think it is entirely too hazy a proposition to venture any further statement about.

Q. If you draw any inference, I am satisfied with that answer.

A. I draw such an inference as appears in the record from the statement or statements I have made at this time.

4523 Q. My question is whether or not you inferred he used the Desplaines at all, to any extent, with his boat in the water?

A. I would have to base by inference on the accounts of Hubbard and St. Cosme and Charlevoix in the main.

Q. I do not want to force you to draw an inference if you did not draw one, doctor.

A. I would be willing to draw an inference that it is quite possible that he made some use of the Desplaines with the boat in the water. I would be willing to draw the inference that there is no certainty whatever as to that. I should judge that St. Cosme might possibly have put his boat in the water at some time. If he gives us the distances correctly the boat was not in the water any considerable portion of the way. Hubbard, I think it is evident enough, had his boat in the water a part of the time, probably a greater portion of the way than St. Cosme, although that is very problematical

4524 whether Hubbard had his boat in the water any considerable distance along the Desplaines. Now, then, from such evidence as that I do not see that any one can make any detailed statement as to how much of a passage of the Desplaines in the water was made by Gravier when he gives us absolutely no details.

Q. No, I do not ask you for that, I only wanted to know whether you, in your own mind, inferred that he used the Desplaines at all.

A. I have shown the possibilities, I think. I would prefer to leave the matter that way to drawing an inference.

As to whether if I had drawn no inference and do not feel justified in drawing an inference, I would so state, I will say I feel justified in stating the probabilities and possibilities and letting the reader draw his own inferences from such a statement.

As to what inference I would draw as a historian, would say. I would not be justified in drawing an inference without ac-

companying such inference with a summary of the evidence at least on which it was based.

4525 Q. You have given us that summary, now I am asking for the inference.

A. He may have used a boat in the water of the Desplaines, he may not have done so. I have shown here, it seems to me, why it seems a reasonable thing why he had a boat with him, if he had a boat he would doubtless use it wherever feasible. If the Desplaines was in such condition that it was feasible to put the boat in the water, no doubt he would prefer doing that to carrying the boat over land.

In connection with Perrault's use of the Desplaines, I call your attention to my answer as to that on Transcript pages 4141-4142 (Abst., 1562-1563), and say that I think it probable Perrault made some use of the Desplaines.

4526 The document we have on which our knowledge of Perrault's expedition or trip was based, was evidently written originally in French, and has been translated into English. Just what Perrault had which stood for the word "barge," which we have in the translation, I am not clear. Bearing that in mind, and further the lack of clearness

4527 as to just where little Detroit was, I think it entirely possible that Perrault got to Lake Michigan without using the Desplaines. However, I do not think it probable that he did.

Q. I think my question was whether you had any doubt in your mind upon the subject.

A. I believe I have answered it.

Q. I think you can answer that yes or no.

A. I said that I think it probable that he made some use of the Desplaines. If you wish me to say I am certain, I would say I am not certain for the reasons I have undertaken to indicate in part on pages 4140 and 4141. (Abst., 1563.)

Q. Now, will you just state whether or not you have any doubt in your mind?

A. I have given my opinion, that opinion does not amount to a certainty, it seems to me that clearly answers the question.

Q. Have you any doubt in your mind?

Objection; that the question has been answered.

The witness is advised that he is not required to give further answer.

4528 The WITNESS (continuing): I think Heward used the Desplaines in the way pointed out in his narrative.

4529 It is my opinion that Deschamp and Hubbard in 1818 made some use of the Desplaines, assuming that counsel means use by boats in the water. They found it exceedingly difficult to conduct the boats any considerable distance in the water; were frequently compelled to unload them and carry the goods and propel the boats on rollers.

4530 In the manuscript in the Chicago Historical Society Collections, in the handwriting of Gordon S. Hubbard, page 28 (reading):

> "It was about a week before our boats were again loaded and ready to descend the Desplaines; the water of which, being low, floated the boats but short distances before it became necessary to lighten them, often taking all the goods out, and passing boats on rollers over the ripples to floating water. We were about two weeks in reaching free navigation at Starved Rock on the Illinois river, where we rested two days. Some of our men were disabled or sick, but all cheerful and full of fun, rejoicing that the dreaded difficulties were overcome and they were soon to be comfortably housed at their several trading posts."

4531 As to whether Deschamp and Hubbard passed up the Desplaines in 1819, Hubbard's account of this expedition points out that it was time of high flood, when the surrounding country was in large part overflooded. My opinion is that they came up the general Desplaines river route, not being certain however, whether they were at any given time over the bed of the Desplaines or some portion of the surrounding prairie. In my opinion they did, however, make the passage from Starved Rock to Chicago generally along the Desplaines river route, probably much of the time in the river. We have no account of the passage down, in Hubbard, by Deschamp in 1819. Deschamp continued in charge of the Illinois brigade of the American Fur Company, which returned from Mackinac to the Illinois river in a passage in 1818, such as was described by Hubbard to have been made in 1819. That is based on inference, however. As to

4532 Deschamp going down the Desplaines in the fall of 1820. I think it evident that he did go down the Desplaines in the way which Hubbard describes in part, pages 104 and 105 of Hubbard's life, where, among other things, they stated they came to Chicago, remained several days, and further details as to the river being low, and in places dry, and further on page 105, as to carrying goods and effects

from the South Branch to the Desplaines on their backs, and encountering the usual fatigues in descending the Desplaines; that Deschamps did go down the Desplaines in the way Hubbard indicates in part, and in part describes on these pages.

4533 Concerning the return to Mackinac in the spring of 1821, Hamilton's Hubbard, page 116, states that having received orders to join the Fur Brigade at Beson's post, they resumed their journey April 1st from Mackinac and proceeded leisurely, reached Chicago in due season. I infer that they made the sort of a passage up the Desplaines which Hubbard says it was customary for the brigade to make in this period of five or six years, which the book especially deals with.

In 4 Wisconsin Historical Collections, pages 162 and 163 it appears that Child made a trip to St. Louis in 1821, and came back by way of the Illinois to Lake Michigan in a canoe, paddled by two men; that he came across from the Illinois to the Chicago, without making a portage, for he says that being unable to find the portage, as there had been

4534 heavy rains, and the streams were overflowed, when he had gone far enough, he left the Aux Plein, struck out to the northeast, a few miles, and found the current of the Chicago river, there being two feet of water all across the portage. See no reason to doubt that such a trip was made in the spring of 1821.

The only light we have of the down trip by Deschamps and his brigade in 1821 is found on Hubbard 121 account of the annual return trip from Mackinac which states:

"We encountered the usual trials and hardships between Chicago and Starved Rock."

I would understand from that expression such trials and hardships as have been described by Hubbard in more detail in an earlier portion of the book.

4535 I do not, as made clear in my direct examination, place implicit reliance on detailed statements contained in Hamilton's Hubbard. As shown in connection with the account of the Cass trip in 1827, it is oftentimes untrust-

4536 worthy. From Hamilton's Hubbard, page 134, it appears that in the spring of 1822, Hubbard was sent with four boats up the Illinois to Chicago, that he made the trip and returned; no details given but presumably down the river. Then he says: "When we all moved forward on our annual return to Mackinaw." I understand that to mean

that the brigade came up the river in 1822. Hubbard did not return to Chicago in the fall of 1822. Was assigned to post on Iroquois river; so went up the St. Joseph and crossed over to the Kankakee in order to save the remainder of the journey to Chicago and to save the delays and hardships of the route through Mud Lake and the Desplaines. There are no details as to Deschamps, except page 129:

"My destination had been decided by Mr. Deschamps to be the Iroquois country."

4537 Evidently Deschamps was still in control of Hubbard, and presumably of the fur trade in this particular region. I think it may reasonably be inferred that Deschamp returned by the lake to Chicago and went down the Illinois in what for him at that time was the usual way. There are no statements, at least I see none. All that appears as to a trip upon the river in 1824, is at pages 131 and 132 of Hubbard's life, where sometime toward the end of the season of trade in the Illinois country, Hubbard went to Chicago to await Deschamp and the brigade. It was about a month before they came. I infer that they were coming up from the lower Illinois and to Chicago in the way

4538 that Hubbard has described as "the usual way." There are no dates in here. One has to figure out the year that the account deals with. This description I have just read I think applied to the Spring of 1823. Hubbard's first

4539 season in the west was in 1818 and 1819. In the fall of 1818 he passed down from Chicago to the lower Illinois; in the spring of 1819 he passed up the Illinois and Desplaines to Chicago, on to Mackinac; the season of 1819 and 1820 was spent on the Kalamazoo river in Michigan; the third season in the west, of 1820-21, was also on the Kalamazoo river in Michigan; the fourth season, 1821-22 was spent in Illinois, and the account of the passage down the Desplaines in the autumn of 1821 is found on pages 104 and 105

4540 of his life. In 1822 in the spring of this season they left Beson's post, resumed the journey toward Mackinac about April 1st, and proceeding leisurely reached Chicago in due season, where after a week or ten days, they went on to Mackinac, arrived early in June. Details of trip not given. Hubbard spent the season of 1822-23 in Illinois. His third season in that country. He made a passage down the Desplaines river in the fall, and up the Illinois, and on to Chicago in the spring of 1823. It was this season that Hubbard was sent ahead of the brigade with some four

boats to Chicago, and after storing his goods, returned to the brigade, and they all moved forward as he says on their return to Mackinaw.

4541 All these answers are based on Hubbard's life. Hubbard spent the season of 1823-24 at the post of the Iroquois, which was his fourth season in Illinois. On the trip to the Illinois country this year from Mackinaw, he omits to come by Chicago, and goes up the St. Joseph

4542 Kankakee route to his post for the reason which I believe has been stated in the record already. In the spring came to Chicago and awaited Deschamp, after whose arrival they journeyed on together to Mackinac. In the season of 1824-25, Hubbard was placed in command of the Illinois brigade in place of Deschamp, gives up the portage route in passage down the Desplaines because of its difficulties, and adopted the plan of sinking the boats and carrying on trade with horses, which he had long urged upon Deschamp. This statement that I have just made is intended as a correction of my former statements as to the dates of these various trips in so far as they need correction.

4543 These trips made by Deschamps, or which I infer were made by Deschamps when Hubbard was not along would be the trips down in the fall of 1819 and up in the spring of 1820, down in 1820 and up in 1821 and down in the fall of 1823 and up in the spring of 1824, subject to my statements as to the evidence on which they are based.

4544 As to whether the officer referred to by Keating who came up the Desplaines river was Hopson, and considering in that connection Keating's transcript, pages 295-297 (Abst., 135-136), I suppose Keating was told by Hopson that he came up the river. I see no reason to question that. I have no means of knowing except from Keating how reliable a witness Hopson was; think it does not appear from Keating whether the man who came up the river was Hopson or not. Do not think that can certainly be settled from Keating. In the absence of contrary evidence, it would be reasonable to accept Keating's statement that Hopson came up the river.

4545 The particular point Keating has in mind is when he speaks of Hopson as not coming up the river, but coming across between the two rivers from the Desplaines to the Chicago. If Hopson could come across that portion of the route in a boat, think it reasonable inference he could come up the river at the same time. As to how he came up the river one must

review such accounts as we have of the nature of the
4546 passage, when it was high flood, as was evidently so then. For example, Joutel says he had to pull a boat in the water. Hubbard shows they could make but six to ten miles a day with the hardest toil, and Marquette says that the surgeon could not make the passage at all, or tried it and gave it up. The particular circumstances under which Hopson made the passage, would have to be supposed from statements we can find that throw light upon that point. I see no reason to question Keating's statement that he did come up. Having made no study of the matter I have no opinion of whether or not the Illinois Commissioners went down the Desplaines in 1823.

4547 My attention is directed to report of the Canal Commissioners of the State of Illinois, General Assembly, on January 3, 1825, page 4, Gentlemen of this committee were appointed to receive and adopt measures to effect a communication by canal between the Illinois river and Lake Michigan. Made a survey of the region and it appears took canoes at Chicago and proceeded to go up the Chicago river, and then to make a portage, and then to descend the Desplaines 50 or 60 miles to its mouth. It states there is a portage of seven miles to the Desplaines, which evidently applies to some particular time, and not all seasons.

4548 The statement would not be correct without further explanation. Except as to what I have learned from other sources of the nature of the Desplaines and the usual passage of it, I would have no reason to doubt that they went down the Desplaines. My knowledge of it is confined to this hasty examination which I have just made.

Whereupon counsel for defendant read into the record from page five of the foregoing document the following:

"It is a source of much satisfaction for the Commissioners to be enabled to state, that the result of this examination eventuated in the conviction, that from the mouth of the Illinois river, to the Little Vermillion, a handsome stream 12 or 15 feet wide, discharging its waters into the Illinois river on the west side, and about 4 miles below the rapids of the Illinois, there is not the least obstruction to the navigation, excepting in two or three places below Spoon river, in extremely low stages of water, where small sandbars shew themselves, but
4549 which, however, can be easily removed.

"Perhaps no River on the continent surpasses the

Illinois, in the facility and safety of its navigation, the current being very gentle, and there being but few Islands in the River.

From the mouth of the Little Vermillion, above referred to, neither the Illinois nor the Desplaines is navigable in low stages of water, as they are frequently interrupted by rapids; but no serious obstacles present themselves, in effecting a Canal navigation from the head of the navigable waters of the Illinois River to Lake Michigan; the valley of the Rivers Illinois and Desplaines, being an inclined plane, and the country between the Desplaines and the Chicago River, smooth, flat prairie, with a gentle inclination towards the lake."

The WITNESS (continuing): Subject to the qualification to the validity of the detailed statement in Hubbard's life, it seems evident that in the early spring of 1825, when
4550 the rivers and streams had all overflowed their banks, Kinzie sent two men in a canoe from Chicago down to Peoria; that Hubbard about the same time in another canoe with one companion went on the same trip. They went to St. Louis, got some goods, delivered them at Chicago. In the absence of further details, basing my inference on general knowledge, I suppose they came back up the Illinois and Desplaines river as was usual at that time of the year when such passages were made.

4551 The source of an opinion as to a trip by Fonda up the Desplaines must be based on a series of newspaper articles, containing the reminiscences of him, written when an old man. An informant of L. C. Draper says they are as radical as anything of the kind given from memory (from the editorial note preceding Fonda's Reminiscences).

4552 In these reminiscences, I have no doubt there is much truth and error. As to the outlines of the work, they may be taken with considerable confidence as being correct in spirit. Details must be taken subject to criticism and verification. It is my opinion he did not make this trip in 1825 but probably two years later. Though I see no particular reason for doubting that such a trip was made in a canoe up the Illinois and probably by way of the Desplaines to Chicago. Such a conclusion must rest upon inference. I read from 5 Wisconsin Historical Collections, page 216:

4553 "At length the councils were concluded, and our guide signified his willingness to proceed. Under his

direction we paddled along until we came to the Desplaines River, from which we passed into a large slough or lake, that must have led us into a branch of the Chicago River, for we followed a stream that brought us opposite Fort Dearborn."

Further than just read there is no detail of the passage of the Desplaines. My opinion would be that some such trip was probably made, and the Desplaines probably used, and if it was not in the spring, which I think it was, it was at a time when the water was higher than ordinary, both on the Illinois and Desplaines.

4555 I have used Blanchard's History. Historians need to be on their guard in my opinion in using it. Have not made a critical study of Blanchard for this case, except in a general way. Blanchard lived here in Chicago, about a generation ago and undertook to write a history of Chicago and to some extent the Northwest generally.

4556 Blanchard's History, Chicago, Blanchard & Co. 1898, page 503 (reading):

"This young Miss is now, 1880, Mrs. Archibald Clybourn, residing on Elston avenue, Chicago; and to her is the writer indebted for the preceding facts relating to her father. In the spring following their residence at Lee's Place 1827, her father, Mr. Galloway, moved with his family to the home he had purchased the year before. His transportation to the place was effected by means of a large boat fashioned on the dug-out plan, which he made himself from a black walnut tree, on the banks of the Chicago river. Taking advantage of the usual spring freshets, he navigated this vessel, freighted with his family and all his valuables, through Mud Lake
4557 and down the Desplaines and Illinois rivers, to his home. The place was then called the Grand Rapids of the Illinois. Here Mr. and Mrs. Galloway spent the remainder of their days, highly esteemed by all who knew them. Mrs. Galloway died in 1830, and Mr. Galloway survived till 1864, when he died, and many of the present inhabitants of Chicago will doubtless remember reading the becoming obituary notices which the Chicago papers gave to him at the time."

As to whether this trip was made I hate to express an opinion without investigating the matter. There is no indication

as to the age of this young Miss at the time the trip was
4558 made. I do not care to accept any of Blanchard's statements with confirming them. If I could not confirm them would take it as suggestive. Blanchard as has been pointed out, had a trustful and childlike disposition in historical matters, and was inclined to consider if he had any authority whatever for a statement that therefore it was established and valid. Would accept his statements as suggestive, unless could corroborate them or they appealed to me as self-evidently true. Would seek to find with ref-
4559 erence to the supposed trip of the Galloway family. If there was no river there, unless it was in time of extreme spring flood, I would suppose the trip could hardly be made in a dug-out. It says it was made in the spring of 1827 at the time of the spring freshet. I judge from some of the accounts we have had that are in the record, it will be possible to send a dug-out down the Desplaines in times of spring floods.

4560 I think any historian who is worthy of the name, would seek to investigate that matter further before he came to any final conclusion upon it. I would hold it as suggestive, and if no inherent impossibilities existed in the statement, would not be inclined to reject the story. I might even suppose the statement were probably true.

4561 I have no reason to doubt that Cass made a trip up the Desplaines in 1827. The account of Furman's supposed trip in 1829 is said by the author of Chicago Antiquities to be taken from an old Maryland Periodical, as a letter purporting to have been written from Fort Dearborn June, 1830. It states that in April, 1829, Furman with a party of men in a canoe went up the left branch of the Chicago to its source, thence in a heavy snowstorm passed through Lake Marais into the Riviere Aux Pleins. It states that the prairie between those streams is swampy, and during spring floods a considerable lake is formed; that there is water connection between the two; the principal point
4562 of the letter dealing with the wonderful shooting, purporting to be testified to by Furman's associates. I would take it as strongly suggestive that the trip had been made. See no particular reason to doubt it. Have made no independent investigation as to whether that trip was made.

Whereupon counsel for complainant directed the attention

of the witness to a statement by Flagg, transcript page 375 (Abst., 175) (reading):

"The Illinois, which is about 400 miles in length and heads near Lake Michigan. A branch of the Illinois heads within 4 miles of the head of the Chicago, a short river which empties into Lake Michigan. In freshets boats pass this portage, the waters being connected. They are made shallow for the purpose. I have seen them at St. Louis landing."

4563 This statement was taken from the Alton Weekly Telegraph, 1876, a contribution entitled "Madison County in 1818." Counsel states that these clippings were obtained from the grandson of the Flagg who wrote the letters, 4564 and that they have been returned to him, and that they have never been published in a historical work.

4565 The WITNESS (continuing): I should not attach particular importance to such a letter, basing my knowledge on a perusal of the record for the reason that such information as we have here is very liable to be inaccurate and incorrect, and requires careful scrutiny.

4566 Statements by pioneers of early history of Chicago under similar circumstances have been found to be inaccurate. For instance Gale, who lived here since 1835, wrote a book, purporting to give his reminiscences. Ferdinand Jones and Furgus have completely riddled his statements, and I may say, if I were allowed the opportunity, I could riddle those of the latter gentleman.

4567 On the assumption that the statement of the editor is correct that these letters were copies of letters which were written by Mr. Flagg September 12th, 1818, and between 60 and 60 years before the editorial, I would say the analogy is not a close one, but I point out that Mr. Flagg knew or what he had means of knowing about the Chicago portage does not appear from the testimony of complainant's witnesses. Flagg may have detailed common hearsay or 4568 current talk, which I have shown on my direct was largely founded on hearsay. I doubt very much whether the boats were made shallow for the purpose of passing the Chicago portage. Have no way of knowing what Flagg knew about the matter. While I have positive evidence that there was a general and mistaken impression as to the nature 4569 of the Chicago portage, and a frequency of its passage by boats in this period, I think it was probably feasible

to pass from Lake Michigan to the Desplaines without portage, in time of sufficient freshet with the right kind of a boat. There are sources that indicate that fact. I suppose if I told counsel I was in the habit of jumping a six foot fence, counsel, probably knowing that that has been done by athletes, might possibly open his mind to the proposition that I could do it, but might not and probably would not positively in his mind think I had done it.

4572 You are offering me a newspaper account of what purports to be the letter of a man who may have known a good deal or who may have known nothing about the things he was writing about. You are asking me to give my approval of that letter, and I have stated my position with reference to it. I have no reason to doubt that at times in freshets boats might pass through—from the Chicago to the Desplaines. I have no particular reason to affirm that Flagg, who is supposed to have written this particular letter, had any knowledge of his own on the subject. I think the whole ac-

4573 count is properly to be held in suspicion. What I know about Flagg appears here in the record.

Whereupon counsel for complainant directed the attention of the witness to "Recollections of the last ten years, passed in occasional residence and journeyings in the Valley of the Mississippi," etc., in a series of letters to Rev. James Flint, of Salem, Massachusetts, by Timothy Flint, 1826, at page 102, which the witness read as follows:

> "Boats ascend the Arkansas and Red rivers, nearly two thousand miles. Boats come with very short portages from Montreal to the upper Mississippi, and I have seen a Mackinaw skiff carrying five tons, which came from the lakes into the Chicago of Michigan, and from that over a morass from one end of which run the waters of the Chicago, and from the others those of the Illinois, into the Mississippi, without any portage at all. The waters of the morass were found sufficiently deep

4574 for her to make her way from the river of the lake, to that of the Mississippi."

From Flint's statement that he arrived at St. Louis on the 24th of May, I should say that if he did arrive there, he

4575 may well have seen those boats were at that town. Would have no reason to doubt that Flint saw a boat, which he thought had made such a portage. It does not appear that he saw it make the portage. As to whether or not

I would accept the statement of one who had not seen the boat go over the portage, that would depend entirely
4576 on the circumstances of a given case. It would seem a reasonable conclusion that Flint was told this boat made such a trip. It is not evident, as counsel seems to think, that he talked with the men on the boat. He may have gotten reports from others. The element of doubt in my mind so far as I question this statement, pertains to the common impression as to the nature of that passage and the frequency of its use, which was erroneous and unfounded. Flint might have been informed by one speaking under the influence of this erroneous impression. See no particular reason to question that such a trip was possible by a Mackinaw boat in time of spring flood. Do not deny that such a trip was made or that the boat that Flint saw had actually made the passage.

4577 If I would look up sources to determine whether or not the Desplaines had been used, and I found that statement in that work, would consider that statement pretty good evidence that the Desplaines had been used; and I do not understand that the thing stated would be impossible.

I do not say that the historian accepts no source as reliable which is based on hearsay; some may be good, others may not. I prefer to examine every source, if possible. As to whether I would consider that kind of a statement one which would be good, would say that would depend on the information which Flint had received.

4578 I have pointed out that we have no means of knowing from whom he got this information. Counsel suggests that he talked to the boatmen. I do not see that this is a necessary conclusion. This thing was in the air at the time; it was retailed in many books and it was doubtless repeated many times by persons in conversation; repeated orally I meant to say. I consider this pretty fair evidence; perhaps not absolutely conclusive evidence.

4579 If I found that in the only statement on the subject, and I were writing a history serious enough to warrant it, I would probably make the statement and cite my evidence for it, leaving the reader in a position to judge for himself whether the statement was baseless or not. There are all sorts of histories. Some written for newspaper articles; others text books, or to entertain. I assume I am writing a serious history.

4580 Based on this one source as it appears here, I would not make a statement as to the passage from the lake to the river without portage without any qualification or reservation or expression of uncertainty. Taking into account what I know of Flint, his opportunities, travels, physical condition of the river and its use by others, I have no reason to doubt that such a trip may have been made. It is another matter to affirm that it was made.

4581 The journal of Marquette's first voyage shows their return trip July 17th, reached Green Bay the end of September. Between the middle of July and the last of September, he evidently passed up the Illinois. I understand the total length of the trip was about three thousand miles;

4582 that the return trip was shorter than the outward journey. Roughly, the return journey must have been about 1,200 miles long. Chicago, generally speaking, is about

4583 300 miles from Green Bay. Therefore, having gone over probably more than half of their journey, more than half of their time had been consumed when they reached the Desplaines river and Chicago. That is from July 17th, until the end of September, approximately two and one-half months. From this hasty calculation, I presume it may have been around September 1st.

On transcript page 4267 (Abst., 1609), I located the time Marquette went down the Desplaines, approximately the last of March and first of April at the time of spring floods.

4584 The marginal notation for the meeting of the surgeon is the 6th of April. In my conclusions, transcript 4268 (Abst., 1610), I placed the time of Tonty's trip as November or December. I may want to check that up further. I supposed that was accurate when I gave it.

4586 Joutel was in March, according to transcript 4263 (Abst., 1607); St. Cosme between November 2nd and

4587 11th, transcript 4267 (Abst., 1609); Perrault left Cahokia on May 4th, to come up the river, which would put him about the early part of May. Heward's time has been located transcript 4267 as May 12th to 15th. I say the date of Hubbard is evidently about October 1st, transcript

4588 4270 (Abst., 1611). There is nothing to fix the exact date of Hubbard's first trip down further than as to the time he got to Chicago and the approximate length of time he stayed there. That is without pretending to be accurate as to detail.

4589 As to the trip up, Hubbard's life, page 59, states that on the forenoon of March 20th they heard the portage brigade, and the next day loaded their boats, and the day followed started on the journey up the river, arrived at Chicago about April 1st. Hubbard was in doubt about these dates in his old age. He appears to have changed them from time to time.

Think it would be impossible for one to locate date of Child's trip on the evidence I have seen, aside from weather conditions. Those are the only things I have to base an answer on. I infer it was either in the spring or time of flood.

4590 Keating reached Fort Dearborn on June 5; was there a few days before he learned of the trip by the officer, which trip would then be a few days before June 5th.

Fonda transcript 4265 (Abst., 1608), was not located any closer than can be done by the condition of the weather. There is no statement further indicating.

4591 The different men who recounted their own experi-
4592 ences in actually using the Desplaines (I do not pretend that this answer is complete—I give as many instances as occur to me at this moment) were Tonty in November to December, 1680; La Salle, so far as he may have come up the Desplaines, from 1680 to 1681; that of Child in 1831; the surgeon, who Marquette reports, in 1675.

4593 Jourtel's trip. These were passages up that I have referred to. Now, down the river, that of Membre-La Salle party, January, 1682; St. Cosme, 1698; Hubbard and party the fall of 1818; similar passages made by Hubbard or others, which he discusses in succeeding years; men from Montreal of whom Joutel tell us, who were unable to make the trip any further than Chicago. I add to the list of those passages made up the river, the various passages which Hubbard or others whom Hubbard describes made, wherein it appears that difficulties of any sort were encountered.

4593 Referring only to those who describe their own experience, those up the river route, were Tonty, La Salle, Child, Joutel, Hubbard, Down, Membre and St. Cosme.

4594 Speaking from memory, the difficulties described by Tonty, were lack of food, poor canoe and danger from hostile Indians.

In 1680 and 1681 La Salle was traveling on foot through deep snow in that particular expedition.

4595 Child's difficulties arose chiefly from the fact that there was such a flood that he was uncertain as to his way; difficulty in finding portage, which did not exist at the time in the usual sense.

Joutel's difficulties also arose from too great an abundance of water; flood conditions on river, had to pull canoe in water.

In a general way Hubbard's up-trips were similar to those of Joutel.

On the down-trips Membre went on the ice and through the snow in the winter of 1682.

4596 St. Cosme's difficulties arose from an absence of water to float his boat in; by one account he computed the portage at 15 leagues and by another 17 leagues. This trip was in the first half of November.

The down-trips of Hubbard were difficult because of the absence of water. The first was in October, the others approximately that time.

4597 Q. So that of the accounts of those who actually used the Desplaines river, the only recorded difficulties which we find growing out of low water arose in October and November?

A. In the restricted way in which the question was put by counsel, I believe that is correct, so far as those men we have under consideration are concerned.

Q. And we also find that the river was in fact used by various other people whom we have been able to locate as using it in March, Marquette, Joutell and Hubbard; in April Marquette and the surgeon; in May, Perrault, Heward and probably Hopson, who we concluded came up there in May or June; in July, Cass; in September, Joliet and Marquette; October, Hubbard; November, St. Cosme and La Crosse; and November or December, Tonty.

4598 A. It seems to me counsel is using his term "the river was used," in entirely different sense in these different questions. If I answer the question as asked, it will be made to appear that I am using the term in a single sense. We have, as appears in the record, accounts of the use of the river route, and at times of the river, by such men and during such months as counsel has indicated. I think, however, these answers put me in a misleading position.

4600 Q. Doctor, did you have in mind any other authorities than those to which you have already referred, bearing upon the conditions of the Desplaines river? If so, I

wish you would give me first the names of those authorities.

A. I do not see how I could answer that question, because there are, I suppose it would not be exaggerating to say, scores of authorities and works that refer to the Desplaines river, and that I could bring to mind if I could take time to reflect. Some of them I have used and some I have not.

4602 Q. I want anything which you have in mind on which you would rely as a historian, or have relied in the various statements you have made concerning the difficulties in using the Desplaines.

A. First, La Salle. The reference is Margry, Volume 2, at page 79 and 168 to 174. Joutel. Hubbard's account of the first trip up the Desplaines. Hubbard, including

4603 whatever appears as to his further trips up the river. St. Cosme. Marquette's account of the surgeon. Heward. Hubbard's account of the down trip in 1818. References to similar down trips and reason for avoiding them in future when he found it possible to avoid them. Schoolcraft, 1821. Charlevoix, 1721. Tonty, 1682. Margry, Volume 1, p. 602. Kennedy, 1773. Alvord's summary of accounts of passages of the Desplaines, contains those of Membre and La Salle in 1682, which obviously have nothing to do with navigation of the Desplaines. Therefore I leave them out of this list.

I am offering the list I had in mind at the time counsel put the question which I regarded as unfair. (Trans., 4598; Abst., 1709.)

4604 I am not certain at this time that this list is complete. The accepted opinion is that La Salle first saw the Desplaines about December, 1680, or January, 1681, perhaps its mouth in 1679. He may have seen the Desplaines, aside from the mouth, earlier, since he passed down the western side of Lake Michigan to St. Joseph in 1679. He passed down the Kankakee river in 1679, and would naturally

4605 see the mouth of the Desplaines. On the trip down the west shore of Lake Michigan he may have made an excursion to a point where he might have seen the Desplaines. I am only stating possibilities; I have no positive evidence.

4606 In the course of the canoe voyage around the lake, La Salle probably came by Chicago, and being an explorer and on such a mission and with such an errand as he had in mind, it seems to me entirely possible that when he

came to the Chicago river he may have taken a sufficient-
4607 ly long excursion to have viewed the Desplaines. Do not state that he did that, nor can I read any positive statement in any book to that effect. Both references I gave to counsel were not to this particular trip. I based that statement on the understanding of the accounts we had of the
4608 trip. I might call attention to Wisnor, who is generally regarded as good authority on that. Speaking from memory, I know you will find there is no doubt whatever
4609 on that point. La Salle went around Lake Michigan to the mouth of the St. Joseph river, stopped there for some time, and thence to the Kankakee and Illinois. And in doing that I suppose he would pass the mouth of the Desplaines river. And unless he made some excursion from Chicago I suppose he would not have seen the Desplaines at any other point except where he passed it at its mouth.

Q. Do you find any affirmative evidence in any account of that trip, that La Salle did stop along the shores of Lake Michigan at any point and make excursions?

A. In Winsor's Cartier to Frontenac, pages 263 and 264 is Winsor's account, which is a secondary one, of this portion of this particular trip of La Salle's. It appears that the
4610 Griffon set sail from Green Bay September 18th, 1679; La Salle shortly started on his trip down the western side of the lake from Green Bay with four canoes and fourteen men. Canoes were laden, gales encountered, food gave out and they secured supplies, of Indians along the way; also a number of their party engaged in hunting along the way to keep them in food. They found wild grapes and feared their camp would be robbed by savages, and so forth.

November 1st, 1679, they reached the mouth of the St. Joseph. From that account it would appear that it is not an unreasonable inference, and I may say not as unreasonable as some counsel have desired me to draw, that La Salle might have seen the Desplaines. I have not said that I have positive evidence and I have not said that I can read any positive evidence from a book showing that he did see the Desplaines in the course of his passage down the western side of the lake.

4611 Winsor seldom states authorities. He has been criticised for this, but his books as a whole are regarded as highly as anything American historians have produced. Turner, whom complainant's witnesses have given a high repu-

tation, and rightly too, himself gives high approval to Winsor's books.

4612 Parkman's account of this expedition gives further details, that La Salle having trouble with certain of the Indians, went forth, pistol in hand, met a young Outagami, seized him, and led him back to camp. This done, he again set out, and soon found an Outagami Chief,—the wigwams were not far distant.

Without investigating what particular part of the trip this was, the Outagami Indians were located in the region immediately around Chicago, at the western side of the lake toward the southern end. Perhaps they were located further to the north; they were to the north rather than the south of Chicago. As to whether they were located near Green Bay in Wisconsin, I sould have to look that up before giving a final answer. (Reading, p. 150):

> "The official account of this journey is given at length in the Relation des Decouvertes et des Voyages du Sieur de la Salle, 1679-80-81."

4613 I presume that will be found in Margry. In Vol. 1 Margry, p. 435, is an account which I suppose would contain the account of this journey. On page 451, it appears they started out from Green Bay on September 19th, passed along in a southerly direction and suddenly a storm arose. The next paragraph is dated the 25th. Evidently almost a week was consumed in the passage described in this one

4614 short paragraph. It would have been possible to have made excursions at that point in their route. If they had it would not be the Desplaines river. It simply appears that they gained the land and tarried there six days. He does not tell us whether they spent the six days in excursion expeditions or on the one point where they gained the land. I suppose he was about Green Bay. On the 25th they journeyed all day; the wind rose and they landed on a rock. Here they stayed two days. I am giving the substance of the translation.

4615 Under entry of the 28th they were forced to land on a rock, where they stayed two days and ate up the rest of their food. I think they had not come to the site of Chicago at this time.

They departed October 1st and traveled some distance, almost to the Pottawattomies village.

4616 Mr. Winsor locates the village of the Maskoutens and Outagamies at the River Milwaukee.

Objection to cross-examination as to matters which were not the subject of examination on direct.

4617 The WITNESS (continuing). Without having read on to the end of the relation in the original French, I understand this reference to the Pottawattomies is before the account of the meeting with the Outagamies, judging from Parkman's paraphrasing of the account.

4618 My statements as to these explorations or stops were not based on the reading of this article. Therefore it seems to me it has nothing to do with the statement. I am able to read French, and will translate it if counsel desires. Or I can give it by reading from Parkman's or giving a summary of his account or of Winsor's account.

4619 I would not undertake to state all the stoppages mentioned in this narrative of that journey without consulting the authority. To state where they stopped I would have to go over the narrative, taking the accounts of stoppages, length of time they stopped and estimating distances.

4620 I have referred to Margry when I was interested in looking up some particular point. I have not read over the original journal; I have read portions of it as I have indicated.

4621 Waiving the dispute as to whether La Salle came up the river several years before this, I would say that I am not aware of any affirmative evidence that La Salle ever saw the Desplaines prior to the time he passed its mouth going down the Kankakee.

As to when I find the next account of his seeing the Desplaines or going up or down it, will say I believe the next direct account had to do with La Salle's return from Canada to the Illinois country in the fall and winter of 1680, when he found the Illinois village destroyed, and returned to the fort on the St. Joseph.

4622 On the direct examination it was established that he came to the forks of the Kankakee and Desplaines and some distance up the Desplaines, it being problematical, how far. He finally came out at St. Joseph. Complainant's witness sought to show he passed along the Desplaines at that time; my own opinion being it is not capable of being shown how far he passed along the Desplaines. In the spring of 1681

he went from St. Joseph to the Illinois. It does not appear whether he saw the Desplaines or not at that time. It does not show he went down the Kankakee. It simply shows he went from the fort on the St. Joseph to the Illinois. I base my statement on Winsor's account.

The next occasion he saw the Desplaines was in the winter of 1681 and '82. Counsel asked for positive and direct accounts of seeing the Desplaines, which does not take into consideration that La Salle was in the country much of the time and may have seen the Desplaines or other portions of the country, without giving any account of it.

4623 The first time La Salle came through the country, he arrived at St. Joseph November 1st; resumed journey December 3d; went up river to the portage; thence down Kankakee to Fort Creve Coeur, although he did not spend winter at that fort.

4624 La Salle started on his trip to Canada in March, 1680, so evidently passed a considerable part of winter in the western country. (See Winsor, Carties to Frontenac, p. 270.)

Parkman's La Salle, page 167, Chapter 13, dealing with the winter La Salle spent in Illinois, says, that in the middle of January La Salle and Hennepin went in a canoe from Fort Creve Coeur to what we now call Starved Rock, which he noted on his way down as being a suitable site for a fort. He went back to Creve Coeur; spent some weeks there. Started in March to return to Canada; came in a canoe to a point some miles below Joliet, and on account of river being closed despaired of going further by water, hid their canoe and started across the country for Lake Michigan. La

4625 Salle went on to Canada; started to return to Illinois in August; came to Mackinac; thence down the east side of Lake Michigan to the fort on the St. Joseph. Found it abandoned, and went on with a part of his men to Illinois, in the early winter of 1680-1681. He reached St. Joseph in 1680, in November; was floating down the eastern side of lake during October, according to Winsor.

4626 2 Margry, Sec. IV, Voyages of La Salle, from Lake Ontario to the Illinois, and so forth, page 79, does not describe any trip, but gives an account of conditions in the Illinois country, etc. This particular account is dated 1679 to September, 1680, and is called a letter of discovery to one of his associates (he gives an account of conditions met with

in the course of this account of the nature of the water routes.) I read from the translation (reading):

4627 "Furthermore, even if contrary to what has been said to us and to all which I can conjecture about the river, it should not be navigable as far as the sea, this second bark which I have had begun in this country of the Illinois would always be very necessary to bring back by a river which I have found the products of the country of the Illinois to Fort Frontenac, this river being there much more convenient than the way by which Joliet had passed, of which he had dissimulated the difficulties for reasons which I have not been able to guess."

He then describes the route by this river to which he refers on the map and takes up the consideration of the route by the lakes and its difficulties. (Reading page 81):

"The route by the lakes has some very great difficulties which Joliet has ignored in part and in part dissimulated. There are many more establishments needed there. There is one needed at the base of the falls by which Lake Erie empties into Lake Ontario, where navigation of barges is interrupted for thirteen leagues, and another where it begins again to serve below and at the edge of Lake Ontario to receive what comes from Fort Frantenac, while waiting until they transport it to another establishment, where navigation begins at the entrance to Lake Erie, in order there

4628 to reload it into barges. Again there is a very great difficulty which is that near the opening of this lake there is no harbor or roads where one could put a barge in shelter from the furious blasts of wind which prevail there, and because, if they descend into the river, one encounters first a rapids which a barge would not be able to run under sail, unless by tracking out of it and having men, and always with a wind behind and sails set.

2nd. One of them is also needed at the lower part of the Lake of the Illinois, where navigation ends, at a place named Chicagou, to lock up there the things they have brought in the barges and have them transported by canoes two leagues from there, the said canoes can only navigate as far as the village of the Illinois for a space of forty leagues, contrary to what Joliet had said,

that there was only a quarter of a league of interruption of navigation.

3d. One of them is also needed among the Illinois, where barges can navigate.

Besides the multiplicity of establishments which augment greatly the expense and difficulty the lack of exactitude in accounts, the expenses of so many boats are great."

4629 La Salle comes back to this same subject and gives same subject and gives a more detailed account of the nature of the water connection between Lake Michigan and the Illinois by way of the Chicago and Desplaines. The document is headed Roman numerals 2, "Descent of the Mississippi to the mouth of that river," and begins Margry 164, "La Salle arrives at the Illinois, or among the Illinois. Description of the country to the junction of the Missouri with that river which the discoverer has named the Colbert." The date of the document was evidently after January, 1682, for he refers to events that have taken place at that time (reading):

4630 "Having made my caches, I started on the 28th of December, and I went on foot where was Sieur de Tonty, the 6th of January, snows having stopped me some days at the portage of Checagou."

The date there was December 28th, I think in 1681 (reading, page 165):

"This is an isthmus of land which is at 41 degrees, fifty minutes, elevation from the pole, at the west of the Lake of the Illinois, where one arrives by a channel formed by the meeting of many rivulets or gulleys of the prairie. It is navigable about two leagues as far as the edge of this prairie at a quarter of a league toward the west. There is a little lake which is divided in two by a beaver dam, about a league and a half long,

4631 from which issues a rivulet which after winding about half a league across the reeds goes to fall into the river of Checagou, and from there into that of the Illinois. This lake being filled either with great rains in summer or by the inundations of spring, discharges itself also into this channel which leads into the Lake of the Illinois, whose surface is seven feet lower than the prairie in which this lake is."

This is, as I understand, the modern Desplaines.

(Reading):

"The River of Checagou does the same in the spring when its channel is full; it discharges by this little lake a part of its water into that of the Illinois, and at that time should any one make in the summer a little canal of a quarter of a league, says Joliet, from this lake as far as the basin which leads to that of the Illinois, barges could enter into Checagou and descend as far as the sea."

4632 Heath's French Dictionary, in common use by high school students and undergraduate college students, defines "barque" as follows: "Bark, boat, craft, barge."

My study of the record made it evident to me that the translation I am using could be relied upon. Therefore I use it rather than translating the original myself (reading):

4633 "That might perhaps happen in the spring time, but not in the summer, because there is no water at all in the river as far as Fort St. Louis, where the navigation of the Illinois begins at this season, and continues 4634 as far as the sea. It is true, there is another difficulty with this ditch which one might make could not remedy which is that the Lake of the Illinois always forms a bar of sand at the entrance of the channel which leads to it, which I doubt very much, whatever they say, could be cleared or dissipated by the force of the current of Checagou, when one should make it empty there, since much greater ones in the same lake cannot do it. Moreover, the utility of it would be inconsiderable because I doubt, when all should succeed, if a vessel could overcome the great inundation which the current cause in Checagou, in the spring much more rough than those of the Rhone? Again, it would be for a short time and at most for fifteen or twenty days a year, after which there is no more water. What confirms me again in the thought that Checagou would not clear out the mouth of the canal is that the lake being filled with blocks of ice these stop up the most navigable mouths at that time, and, when these blocks of ice are melted there is no more water in Checagou to prevent the stopping up of this canal with sand. But then I would not have made mention of this communication if Joliet had not proposed it, without having sufficiently taken account of the difficulties."

I point out that the references to the Chicago river, in all cases where the term is used in this particular passage just read, I understand, are to the modern Desplaines river.

4635 La Salle being at the St. Joseph river in November, 1680, was eager to reach his destination. I assume he did not stay there any particular length of time. It is clear he was hurrying to get to the fort on the Illinois. They went to the mouth of the Illinois. He traveled back from that

4636 point up the Illinois to where he had left his men at the abandoned or destroyed Indian village on the Illinois. Did not stay any length of time; was in search of Tonty. Picking up his men he went up to the mouth of the Desplaines, and some distance up the Desplaines, then overland to the fort on the St. Joseph. When he went up from the place where he met his other men it was about December, 1680. I read from Winsor, page 272 (reading):

"It was now the early days of December, 1680. He rejoined the men whom he had left near the Illinois town."

4637 He spent the winter at the fort on the St. Joseph, and in March went back to Illinois. Winsor, page 288:

"La Salle reached the fort on the St. Joseph in January, 1681. He stayed there until March, 1681, when he started back, and then he returned to the St. Joseph.

4638 It appears that he met a band of Indians on this trip from the fort on the St. Joseph to the Illinois, and the news they gave him led him to make this return and to go on to the Mackinac where he found Tonty in June, 1681."

(Reading Winsor, 289):

"In March he started on toward the Illinois, full of this hope. On the way, he met a band of the Foxes, and from them learned that Hennepin had passed through their country from the Sioux region, and that Tonty was among the Pottawattamies. These tidings hurried him on. He laid his plans before the Illinois, and then, coming back to the Miamis," —

I judge he went to the Illinois country apparently, and then went back to the fort on the St. Joseph and to Mackinac. He came to the country again in the autumn or winter of this same year and started on his trip down the Mississippi.

4639 He had gone to Mackinac in June; from there to his establishment in Canada, and in August returned

to the west and was at Fort Miami on the St. Joseph on November 3d with a considerable party of French and Indians, which he divided into two bands. Tonty and Membre, with one, went by way of the Chicago route to the Illinois; La Salle and the other one by way of the Kankakee route. This was winter, December to January. They reached the Mississippi February 6th and the mouth of the Mississippi in April. He arrived at St. Ignace by September, 1682. Was ill on his return up the river; did not progress continuously, and I think he stopped at the fort on the St. Joseph.

4640 In connection with the list of sources I refer to on transcript 4603 (Abst., 1710), two have occurred to my mind which I wish to add; the report of Graham and Philips, and the Geological Report of the United States Survey of the Chicago Quadrangle.

At this point, pursuant to arrangement heretofore made, counsel for defendant thereupon read certain passages in Margry, illustrating the French words employed by La Salle in describing his vessel the "Griffon." (Reading 2 Margry, page 76):

"The fort and the small ships (Navire) which I ordered to be made were begun at the Falls of Conty. The
4641 bark (barque) was begun in the month of May following and put under the sail the 7th of August, 1679, and was lost on the return from the lakes of the Illinois whither I had safely conducted it."

Again on page 76:

"I esteem it impossible to do what M. the Abbe Bernov ordered me, to send to reconnoiter as to whether the great lakes and the great river were navigable otherwise than by a bark (barque) which must hold a very different course from that of canoes, which are obliged always to go as close to land as they can to disembark, as the first wind that blows of which they would not be able to stand the least flurry in the midst of these lakes * * * and the barks (barques) cannot keep too much in the open so as not to be thrown on shore, so that it is necessary to go in a bark to discover the difficulties of the navigation."

On the same page:

"This bark (barque) was absolutely necessary, and one cannot go without it in this enterprise. For the transportation of great burdens, such as the fittings for

the ships (Navire) which I had ordered made in the river of the Illinois, that being impossible by canoe, for although one might use them to bring to the rapids those of the barks (barques) which I had constructed above, it does not follow that one might do so for that ship (navire) in these lakes."

4642 COUNSEL FOR DEFENDANT (continuing): I might state that on other pages he refers to the boat that he was building on the Illinois as a great canoe (canot), page 40, paragraph 2 (reading):

"I had resolved to have built a great canoe (canot) which would be able to descend their river as far as the sea."

The context would show that that was the Illinois, having just stated that he had explained to the Illinois certain things. He gives the projected size of that boat, page 31, November 11, 1680. It shows that he is talking about these things happening at Fort Crevecoeur and shows the dimensions of the boat that he proposed to build.

COUNSEL FOR DEFENDANT (continuing reading, page 31):

"From which place he advanced into the Lake of the Illinois as far as the Huron Islands, where, having sent his bark, he launched out with eight canoes and presented himself in a village of the Illinois, and after having gone somewhat further he commenced a fort named Crevecoeur and a barge of forty tons in order to have it descend into the great river Mississippy which is believed to empty into the great Gulf of Mexico, then he left to present himself at the fort of Frontenac, from there at Montreal, whence he set out again in the month of July to completely accomplish the discoveries."

4643 Again he gives the dimensions of this boat and uses the same term (barque) that he sometimes uses when speaking of the Griffon, as follows (reading page 50):

"Then, in order not to frighten them by the great number of planks needed to finish the ship (navire) which I had projected, and fearing that the barge (barque) which I had in the lakes had just been launched, which had already happened without my knowing it, it might be impossible to bring the gearing of so large a vessel by canoe. I determined for all these reasons to content myself with a barge (barque) which I cause to begun of 42 feet of keel, and only twelve in breadth, and got it so far advanced, that, notwithstanding the work

of the fort, all the planking was sawed, all the wood ready and the barge (barque) put into twisted wood the first of March."

The word "barque" is used there.

4644 The WITNESS. Part of the time on his trips through the Great Lakes La Salle used the Griffon on the outward voyages; part of the time canoes. In the trip down the western side of the lake in 1679 there were fourteen men in four canoes. The Griffon was a sail boat. Accord-

4645 ing to Parkman's La Salle, page 135, 1896 edition, the Griffon was a vessel of about 45 tons burden. He says in a footnote that Hennepin in 1697 edition states it was of sixty tons, but he preferred to follow the earlier and more trustworthy narrative. The Griffon was designed more as a trading vessel than for exploring as I understand it. Joliet and Marquette used canoes. La Salle used canoes on the trip of 1679. I presume that in this early period a canoe would be the usual method of navigation on the lakes,

4646 and as to what was used when some other method was employed I would need to look that up; it may have been a sailing vessel or some other form. There were very few sailing vessels on the lakes; La Salle's was the first. The period of sailing vessels begins sometime later, although they could stretch a sail over an ordinary canoe, if that may be called a sailing vessel.

According to Hulbert, Historic Highways, Volume 9, "Waterways Westward Expansion. The Ohio River and its Tributaries," chapter headed "The Evolution of River Craft" (reading, page 102):

4647 "The batteau, better known in the west as the barge, was a square box of any length, width and depth. It was distinctly a downstream craft, and in the early days rarely ascended with a load any river of current. The canoe and pirogue, compared with the barge, were craft of little burden, though those of generous size would carry the loads of a score of men. The barge or batteau was the freight craft and could be loaded with any burden the stage of water permitted."

Hall in "The West, Its Commerce and Navigation," on pages 9 and 10 appears the following (reading):

"The first boats used in the navigation of the western rivers, were the float boat, the keel, and the barge, the first of which was only used in descending with the cur-

rent, while the two latter ascended the streams, propelled laboriously by poles."

These give as definite a conception as I have of what a barge was; apparently one of them as definite a conception as Hulbert had of the barge in the period of which he deals,
4648 which is obviously later than La Salle's time.

I understand that La Salle was criticizing the statement by Joliet as to the possibility of passing with a barque through the lakes and down the rivers to the Gulf. More generally I would say that La Salle was criticising Joliet's account of the nature of the water communication between these points.

COUNSEL FOR COMPLAINANT. According to the translation at transcript,. 710 (Abst., 294), his language is:

"It discharges by this little lake a part of its waters into the river of the Illinois; and at this time, should one make in summer a little canal of a quarter of a league, says Joliet, from the lake to the basin which leads to the Illinois river, ships could enter into Chicago and descend to the sea. That might perhaps happen in springtime."

Referring to (Trans., 717; Abst., 298), page 267 Vol. 1 of Margry:

"The ship would have to be made in Lake Erie which is near Lake Ontario. It would go easily from Lake Erie into Lake Huron, whence it would enter into Lake Illinois, at the bottom of which the ditch or canal of which I have spoken would be necessary to have a passage into the river St. Louis which empties into the Mississippi."

4649 At this point counsel for defendant read into the record translation from Margry, page 267, which complainant's witness Alvord had theretofore agreed to as being correct (reading):

"The fourth remark concerns a very great and considerable advantage, and which one will perhaps have difficulty in believing: It is that we could easily go as far as Florida in barges"—the French word "barque," whatever you call it, ships or barks—"and by a very fine voyage. There would be only one draine (saignes) to make, cutting a half league of prairie only to enter from the lower part of the lake of the Illinois into the river Saint Louis. Here is the route which one would keep to. The barge would have to be made

in Lake Erie, which is near to Lake Ontario. She would go easily from Lake Erie into Lake Huron, when she would enter into the lake Illinois, at the lower
4650 part of which would be made the trench or the canal of which I have spoken in order to have passage into the River Saint Louis, which empties into the Mississippi, there the barge being navigable easily as far as the Gulf of Mexico.'

COUNSEL FOR COMPLAINANT. What sort of a vessel do you apprehend that the word "barque" refers to in that passage? Such an one as is described in those last two authorities you read, or a sailing vessel?

The WITNESS. I hardly suppose that the barge that Hulbert speaks about would be in the habit of navigating the lakes; evidently La Salle had in mind boats capable of navigating the lakes. Don't know that I could say just what precise form of boat La Salle had in mind. It is my understanding that these terms were not used with mathematical certainty. Sometimes a canoe is called a batteau; sometimes the two words are used interchangeably as a batteau or a canoe in the French sense, and sometimes a Mackinaw boat is called a batteau. I believe Dr. Thwaites undertook to define a
4651 Mackinaw boat by saying it was a large batteau. The Mackinaw boat was not in existence at that time. I used it by way of illustration.

As to whether the word "barque" as used at that time, referred to a fairly large type of vessel, some such boat as the Griffon, I am not an authority on that point. Will look it up. Larousse in his dictionary of the French language, the noveau Larousee illustre, gives the derivations of the word barque, as from the low Latin "barca," which in the old French became "barge." He defines barque as "the generic name for small boats, with or without decks, and of slight tonnage," and further states that barque in speaking of a big ship would be a term of insult. Quelle barge! (What a barge!) This being the illustration.

Larousse Dictionnaire Complet Illustre, defines bark briefly as a small boat. Petit batteau.

4652 Guerin, in his dictionnaire des Dictionnaires, derives barque from the Latin barca, a canoe, and defines it as a small boat. Petit batteau.

Bellows' French and English Dictionary, defines barque by the one word barge.

Smyth's Sailors' Word Book defines barge as "a boat
long, slight and spacious construction. Also a flat-bottome
vessel of burden used on rivers for conveying goods from or
place to another, and unloading and loading ships."

This latter is evidently the sort of boat that Hulbert ha
in mind.

Patterson's Illustrated Nautical Encyclopedia defines barg
as "a large boat in which the oars are double-banked," th
word "banked" being explained thus: "A boat is said t
be double-banked when two men, sitting on the same thwar
pull separate oars.'

I can add nothing further at present.

4653 To form an opinion as to what sort of a boat ma
have been meant one would have to go to a dictionary i
which he had confidence, which definition would have bee
made in the first place from the study of the actual use
the word barque. Another way would be to go to historica
sources and find the instances of the use of the word barqu
which would apply.

4654 I do not understand that such a word is always use
in the same sense. For example, canoe is certainly no
used to mean always a birch bark canoe which I suppose is th
sense in which we usually take the term. Neither is battea
in one given sense. Descriptions of various kinds of battea
vary. Would have to look into the matter before I could giv
a final opinion.

4655 Continuing the translation of the document I was read
ing, at transcript 4630 (Abst., 1716) I come to a furthe
reference to the Desplaines river (reading):

"And then if one should persist in this communicatio
by means of barges (barques) as they cannot navigat
in the lakes before mid-April because of the ice and ofte
even later, and because never at this season nor afte
wards the rest of the year is Chicagou navigable eve

4656 for canoes unless after some storm. The waters bein
always run off in the month of March, it would be easie
to affect than transportation from Fort St. Louis to th
lake by land, using horses which it is easy to get there.

4657 From my study of historical sources that I have use
that bear upon this whole subject, I think on the whol
La Salle has given a very good account of the character of th
Desplaines river in view of the early period of the whit
knowledge of this region; that on the whole later account
of travelers and those who used the river, and so forth, co

roborate La Salle to a very considerable extent. Do not think La Salle any more than any other man, especially men who explore a region for the first time and early in the period of white men's knowledge, is entirely accurate in all that he said. Even Hutchins, a hundred years after this, was seriously astray in his statement as to the length of the Ohio river, down which he had gone himself. Many early explorers were astray in their statements as to distances. Bearing in mind such corrections and taking La Salle's account with reasonable and proper allowance, I would say that I think it is a very good account. Some of these statements I would accept as fact.

4658 For instance (reading Margry, p. 165):

"Having made my caches I started on the 28th of December and I went on foot where was Sieur de Tonty, the 6th of January, snows having stopped me some days at the portage of Checagou."

I would have no reason for questioning it (reading):

"This is an isthmus of land which is at 41 degrees, 50 minutes elevation from the pole, at the west of the lake of the Illinois, where one arrives by a channel formed by the meeting of many rivulets or gullies of the prairie."

That statement might be open to question. Do not suppose La Salle could make observations as to latitude with the accuracy that they have been since made. I would regard that as only suggestive until further verified. Other

4659 items in that sentence might need further verification, as "it is navigable about 2 leagues as far as the edge of this prairie at a quarter of a league toward the west."

I understand La Salle was fairly accurate in making this statement as to the length the Chicago river was navigable. Evidently he referred to the south branch.

4660 As to the passage appearing at transcript 711 (Abst., 295), which reads (reading):

"That might perhaps happen in the springtime, but not in the summer, because there is no water at all in the river as far down as Fort St. Louis, where the navigation of the Illinois river begins at this season and extends as far as the sea."

Assuming I was entering upon this subject for the first time, I would regard that as suggestive, and would undertake to confirm it or prove it incorrect. That does not go to my opin-

ion as to whether it is correct or not. In a general way have checked that up with other historical sources.

As to whether I find anyone else besides La Salle who states that the river Desplaines has no water at all or that there is no water at all in the river as far down as Ft. St. Louis in the summertime will say I do not suppose it is a proper or reasonable interpretation of this passage that La Salle meant to exclude every bucket of water in the river. He
4661 probably meant that the river was practically dry. I presume a fair translation of the French would mean there was no water at all, and I presume La Salle's literal language was inaccurate. I construe it as meaning practically dry, because I think its literal meaning improbable.

Being asked if I would regard a source which I find is inaccurate and which in its literal language disagrees with the known facts as I have ascertained them in my mind, as worthy of any credence at all, will say I might regard a source which I found inaccurate in its literal language as disagreeing with the known facts as I had ascertained them in my own mind. It would depend on the source. I would not reject it for that reason.

4662 As to whether La Salle had not seen the Desplaines in the summertime when he wrote that, I am not sure that I can answer at this moment.

Q. We went all through his journeyings this morning. I will give you a resume of that as I caught it this morning. It may aid you. We found that he arrived at the St. Joseph river for the first time, I think it was, in the first part of November, 1679. He stayed there about a month and then went down the Illinois to Ft. Creve Coeur; started back from Ft. Creve Coeur in March, 1680, and continued then up to Mackinaw. He came back again from Mackinaw in the fall; I think you said some authorities said he came along the lake in October, reaching the St. Joseph river in November, 1680; went from there down to Ft. Creve Coeur and as I have it here from there to the mouth of the Illinois. Came back from the mouth of the Illinois and went straight along up, arriving at the St. Joseph river in December some time. Wintered at St. Joseph. Left there in March, 1681. Went somewhere, we don't know exactly where, and came back and returned to either St. Joseph or Mackinaw as I caught it. Then he left Mackinaw again in the fall and if my recollection is right arrived at Chicago on December 28, 1681. Then went down

the Desplaines and from there to the mouth of the Mississippi and back again later. It was during that downward journey, as I understand, that this document from which you have read an excerpt was written.

A. Counsel leaves two factors out of account. First factor is that I did not state that this document was writ-
4663 ten at that time; I said it could not have been written before that time, since it speaks of occurrences at that time. Second is I waived question wehther La Salle had been in this region some years before or not. As to first, Margry says these are detached pages of a letter of La Salle's of which he has not been able to recover rest. Not prepared this moment to give further information about it. Document purports to describe "La Salle's arrival among the Illinois. Description of the country down to the junction of the Missouri with that river which the discoverer has named the river Colbert." Then follows quotation just have detailed, "Leaves detached of a letter of La Salle of which I have not been able to find the remainder." From other sources we find that La Salle went clear down to the mouth of the Mississippi on that same expedition. As to whether in that
4664 document he only treats of things down to mouth of Missouri will say have not read document through. That is the title as I have indicated. I do not see that that would enable one to come to a conclusion, however, assuming that that is the case. The date of the succeeding document in that book is the 13th and 14th of March, 1682. That might tend to establish the date of the one from which I read, am unable to answer without looking further. Succeeding document evidently refers to the taking possession of the Mississippi Valley that is the country of the Arkansas. That
4665 is from a very hasty sight translation. That occurred on the 12th of March, the document being dated the 13th and 14th of March. Further than appears in the record I did not, before I referred to La Salle in this case, endeavor any further to ascertain when this account from which I have read was written. However, by way of explanation, I have made such search of volumes like the Narrative and Critical History, and various volumes of Winsor and Parkman as I was able to in connection with these matters, and over a mess of details, many of which I do not retain in my mind. As to whether the whole volume of Margry purports to arrange these documents of La Salle in chronological

order I would say, after a hasty survey of a portion
4666 of the volume, that judging by the dates I saw given, the documents do seem to be arranged in chronological order. I give opinion for whatever it may be worth in counsel's opinion. Counsel is questioning me about book which have made clear have not read. Therefore decline to form opinion on such hasty examination. Am not able at this moment to fix date of writing of this letter.

Q. Without knowing date of writing, having in view fact it appears in a volume of which preceding and following passages both refer to trips prior to March, 1682, I mean the passage about there being no water at all in the river in the summertime, would you regard what La Salle says there
4667 as worthy of credence at all?

A. If the passage could be confirmed by other sources it would be considered as one link in chain of evidence which might be built up to establish proposition. Would point out in this connection that La Salle had been interested in west and in exploring projects for good many years, and had been in Illinois country off and on since 1679 and may have been in Illinois country good many years before. Doubtless, in view of knowledge of enterprising and energetic character of man, he gathered whatever information he could concerning this region. He purports to be giving in this document an account of condition in this country and he could draw upon any information he had bearing on those conditions in making up that report. Note that Winsor, Volume 4, page 225, footnote 1, refers to this particular document in about way I have already described it. I read (reading):

"Margry (II, 64) gives a fragmentary letter of La Salle describing the country as far as the mouth of the
4668 Missouri; and (p. 196) another detached fragment, in La Salle's hand, describing the rivers and people of the new region."

Neither Winsor or Margry saw fit to date letter, so far as can see from reading document. There is no comment on it. Find reference to same letter in Parkman's La Salle's, 1896 edition, page 276, footnote 1. Apparently am not only one who has used document or thought it worth citing. If La Salle had not seen Desplaines river in summer, might or might not regard him careless and inaccurate and unworthy of credence. Would depend entirely on circumstances. If he said sky was blue, even knowing he was blind, need not necessarily discredit his statement. In reference to particular

passage, describing conditions in Desplaines river, especially in stating there was no water in river at all at that time, have indicated what might have been and probably were some of sources of information of La Salle on this subject.
4669 Supposing he did have information from others about conditions in summertime, would not necessarily regard him as careless and inaccurate in undertaking to make any statement about it.

Q. Tell us just why you said at record 3975 (Abst., 1506), speaking of Keating (reading):

> "This general criticism, if I may so term it, which Featherstonehaugh has made upon Keating's account of conditions along the Mississippi and the St. Peter's river, tallies very well with what one might gather from a study of Keating's book, as to Keating's observations concerning the Chicago-Desplaines route. At the Chicago-Desplaines portage, Keating, although here in the springtime, although forced to abandon his boat in Mud Lake, does not hesitate to adopt the report or information of others to the effect that this route is a very eligible one in the spring time. Keating goes no further than to the Desplaines, and without further personal examination forms his conclusion as to the navigability at a different season of the year, and as to the ease of canal communication between the two rivers."

Why do you state that of Keating and not of La Salle?

A. In that discussion of Keating I was undertaking to establish the question of the accuracy and care with which the man made his statements, and in pursuit of that under-
4670 taking chanced upon various impeachments of Mr. Keating's statements in connection with another region. Among those impeachments were these by Mr. Featherstonehaugh which appear in record. And that turning to his account of Desplaines river region around Chicago, passage across from Chicago river to the Desplaines, I found that the stricture or comments Mr. Featherstonehaugh had made upon Mr. Keating were not at all out of harmony with account Mr. Keating gave, and what appears in his book of things here on which that account was based in story of Long's Expedition in 1823.

Q. That was not what you said, though.

A. There are two lines of evidence, the one corroborating or tending to corroborate the other.

Q. Your criticism of Keating as I read that language, how-

ever, was that without himself having personally familiarized himself with conditions, he had accepted what he had been told by others, and it was for that reason that you said those other general criticisms tallied very well with your criticism.

A. I would like to complete my answer now with reference to La Salle, if I may.

4671 Speaking of La Salle, taking account he left of this region, especially contrasting that with that which Joliet left or which is attributed to Joliet, undertaking to check up those two accounts by various sources of information accumulated since they were put forth, came to conclusion, on the whole, La Salle's account was creditable and accurate. Therefore am inclined to accept what La Salle said and to criticise Keating in way have done in record. If should find La

4672 Salle's statements seriously impugned by other writers and on examination of his writings should find evidence which made me think he was in habit of making careless and inaccurate and unfounded statements, would have no reason for not coming to similar conclusion with reference to La Salle, as have to Keating. With reference to statement, "That might perhaps happen in the springtime but not in the summer, because there is no water at all in the river as far down as Fort St. Louis," would say it is my understanding historian is expected to mix common sense with work he does. Do not understand it to be common sense to take that statement in its absolute literal sense. With reference to statement as to impossibility of floating canoe down river, should suppose

4673 there are times such as the Cass Narrative of 1827 when possibility of floating canoe down river at another period than La Salle has stated here would be evident. Suppose the words "this season" in La Salle's statement refer to his statement immediately before, about mid-April. So far as it refers to impossibility of using canoe in mid-April in Desplanes river, would say probably statement is somewhat stronger than it really should be; would not designate it as utterly inaccurate. Would be inclined to say it is

4674 somewhat better than Benton's "hundreds, nay thousands of boats" statement. Do not see any evidence of prejudice in statement. May be inaccuracy in statement, as have already indicated. These are two quite different statements am asked to compare.

Q. You criticised certain authorities because you said they were inaccurate, exaggerated, showed bias, basis being that

statements themselves were either inaccurate or exaggerated in your judgment. I want to know if same reasoning does not apply to La Salle when you find such a statement?

A. Graham and Phillips show not enough water in the Desplaines six months out of year to float boat. Charlevoix states
that at that season of year, particular year being 1721, it
4675 was current information that Desplaines or upper part
of Illinois would not afford water enough for his canoe. St. Cosme shows river practically dry at time he undertook to use it. Same account shows Tonty, who at that time must have been well acquainted with Desplaines preferred a twenty-five or twenty-seven mile portage to making the attempt to pass down it. Appears from other accounts in time of rain or immediately after and in time of freshets, Desplaines could be passed in canoe. To that extent think perhaps this account of La Salle's was too strong, although he points out "unless after some storm," evidently having such condition as that in mind.

Q. Now, will you answer my question please.

Mr. Scott. Objected to as having been answered, being merely argument with witness.

A. If La Salle makes statement that is not valid or is inaccurate or exaggerated, he is subject to criticism same as anyone making such a statement. My opinion as to accuracy of precise statements of La Salle's to which my attention has been directed is that on whole it is reasonably accurate and credible one. Have answered question as to how regard La Salle as independent authority and have tried to give attitude toward whole document and toward La Salle's account of conditions in this region. Taking La Salle in-
dependently, without further corroboration, instead of
4677 saying they were suggestive merely on these points, I be-
4678 lieve made a distinction. I said some of them I would be
inclined to accept without question. Should think if one were trying to get at bottom of statement that there was no water at all in the summertime, and then statement that even canoes could not use it at this season, he ought to check statements up as I have tried to do and I have come to conclusion indicated in preceding answers. Reading statement from record at page 712 (Abst., 295), "Again navigation would be for only a short time, at most for 15 or 20 days in the years, after which there is no longer any water," as to whether I regard that statement as suggestive or as conclusive, will say seems to me I have answered. Should take such statement and

before coming to final conclusion should undertake to
4679 check it up. Have tried to check it up. La Salle is evidently speaking here of boats which came down from the lake; is criticising Joliet's account; speaking of boats which come from lake and go on up the Chicago and down the Desplaines river. Understanding is that period during year during which that could be done is very short. 15 or 20 days might not be entirely accurate. Would not undertake to approve statement as to detail, but in general account is not far wide of mark in way La Salle himself used it. Should say is pretty well corroborated by Graham andPhilips' statement that for six months in year Desplaines could not float a boat. Would add to that about three months in winter season, which, added to Graham and Philips' six months, would make approximately nine months. Said perhaps La Salle's 15 or 20 days was not entirely accurate. That would
4680 cut down the discrepancy somewhat. My opinion as to whether or not La Salle had ever been in this Illinois country before 1679 is that Parkman thought he had; Margry also; Winsor does not think he had been. Parkman thought he went down Ohio as far as Louisville. Margry would have him go further. Not sure that Winsor's opinion is on this point. Reading evidence on which I based my statement as to Parkman's opinion in this matter. Footnote 3 (reading):

> "Decouvertes, etc., II, 285. The literature of this controversy is reviewed on a later page. Parkman thinks that La Salle crossed the Chicago portage and struck
> 4681 the upper waters of the Illinois, but did not descend that river, and suggests that the map called in a later sketch 'The Basin of the Great Lakes' is indicative of this extent of La Salle's exploration in the mere beginning of the Illinois river which it gives. Others reject the "Histoire' altogether, as Hurlbut does in his Chicago antiquities, p. 250, not accepting Parkman's view that La Salle was at Chicago in 1669 and 1670. Dr. Shea holds it was the St. Joseph's river which La Salle entered."

There is further evidence in body of chapter which Winsor wrote which I had in mind when making statement. Page 21 of the 1896 edition of Parkman's La Salle, an account of the expedition from which I read (reading):

> "We return now to La Salle, only to find ourselves involved in mist and obscurity. What did he do after

he left the two priests? Unfortunately, a definite answer is not possible; and the next two years of his life remain in some measure an enigma. That he was busied in active exploration, and that he made important discoveries, is certain; but the extent and character of
4682 these discoveries remain wrapped in doubt. He is known to have kept journals and made maps; and these were in existence, and in possession of his niece, Madeleine Cavelier, then in advanced age, as late as the year 1756; beyond which time the most diligent inquiry has failed to trace them. Abbe Faillon affirms that some of La Salle's men, refusing to follow him, returned to La Chine, and that the place then received its name, in derision of the young adventurer's dream of a westward passage to China. As for himself, the only distinct record of his movement is that contained in a paper entitled 'Histoire de Monsieur de La Salle.' It is an account of his explorations, and of the state of parties in Canada previous to the year 1678; taken from the lips of La Salle himself, by a person whose name does not appear, but who declares that he had ten or twelve conversations with him at Paris, whither he had come with a petition to the Court. The writer himself had never been in America, and was ignorant of its geography; hence blunders on his part might reasonably be expected. His statements, however, are in some measure intelligible; and the following is the substance of them. After leaving the priests, La Salle went to Onondaga, where we are left to infer that he succeeded better in getting a guide than he had before done among the Senecas. Thence he made his way to a point six or seven leagues distant
4683 from Lake Erie, where he reached a branch of the Ohio; and, descending it, followed the river as far as the rapids at Louisville, or, as has been maintained, beyond its confluence with the Mississippi. His men now refused to go farther, and abandoned, him escaping to the English and the Dutch; whereupon he retraced his steps alone." There is a footnote (reading):

"This must have been in the winter of 1669-1670, or in the following spring; unless there is an error of date in the statement of Nicholas Perrot, the famous voyageur, who says that he met him in the summer of 1670, hunting on the Ottawa with a party of Iroquois.

But how was La Salle employed in the following year?

The same memoir has its solution to the problem. By this it appears that the indefatigable explorer embarked on Lake Erie, ascended the Detroit to Lake Huron, coasted the unknown shores of Michigan, passed the straits of Michillimackinac, and, leaving Green Bay behind him, entered what is described as an incomparably larger bay, but which was evidently the southern portion of Lake Michigan. Thence he crossed to a river flowing westward—evidently the Illinois,—and followed it until it was joined by another river flowing from the northwest to the southeast. By this, the Mississippi only can be meant; and he is reported to have said that he descended it to the thirty-sixth degree of latitude; where he stopped, assured that it discharged itself not into the
4684 Gulf of California, but into the Gulf of Mexico; and resolved to follow it thither at a future day, when better provided with men and supplies."

There is another footnote (reading):

"The first of these statements,—that relating to the Ohio,—confused, vague, and in great part incorrect, as it certainly is, is nevertheless well sustained as regards one essential point, La Salle himself, in a memorial addressed to Count Frontenac in 1677, affirms that he discovered the Ohio, and descended it as far as to a fall which obstructed it. Again, his rival, Louis Joliet, whose testimony on this point cannot be suspected, made two maps of the region of the Mississippi and the Great Lakes. The Ohio is laid down on both of them, with an inscription to the effect that it had been explored by La Salle."

(Reading):

"That he discovered the Ohio may then be regarded as established. That he descended it to the Mississippi, he himself does not pretend; nor is there reason to believe that he did so.

With regard to his alleged voyage down the Illinois the case is different. Here, he is reported to have made a statement which admits but one interpretation—
4685 that of the discovery by him of the Mississippi prior to its discovery by Joliet and Marquette. This statement is attributed to a man not prone to vaunt his own exploits, who never proclaimed them in print, and whose testimony, even in his own case, must therefore have weight. But it comes to us through the medium of a

person strongly biassed in favor of La Salle and against Marquette and the Jesuits."

Here I read a footnote:

"One of these maps is entitled Carte de la decouverte du Sieur Joliet, 1674. Over the lines representing the Ohio are the words, 'Route du sieur de la Salle pour aller dans le Mexique.' The other map of Joliet bears, also written over the Ohio, the words, 'Riviere par ou descendit le sieur de la Salle au sortir du lac Erie pour aller dans le Mexique.' I have also another manuscript map, made before the voyage of Joliet and Marquette, and apparently in the year 1673, on which the Ohio is represented as far as to a point a little below Louisville, and over it is written, 'Riviere Ohio, ainsy appellee par les Iriquois a cause de sa beaute, par ou le sieur de la Salle est descendu.' The Mississippi is not represented on this map; but—and this is very significant, as indicating the extent of La Salle's exploration of the following year—a small part of the upper
4686 Illinois is laid down."

Would understand that it is to these portions of Parkman's work that Winsor probably refers to the statements which I have read in giving first part of answer. Have not looked further to learn whether he refers only to this
4687 footnote. Do not know that I have opinion whether or not he had gone down Desplaines at this time we just discussed. Have an impression that a clear case has not been made out; that whole thing is in doubt and obscurity, as Parkman indicates. I intended after reading footnote to read rest of chapter (reading):

"Seven years had passed since the alleged discovery, and La Salle had not before laid claim to it; although it was matter of notoriety that during five years it had been claimed by Joliet, and that his claim was generally admitted. The correspondence of the governor and the intendant is silent as to La Salle's having penetrated to the Mississippi; though the attempt was made under the auspices of the latter, as his own letters declare; while both had the discovery of the great river earnestly at heart. The governor Frontenac, La Salle's
4688 ardent supporter and ally, believed in 1672, as his letters show, that the Mississippi flowed into the Gulf of California; and two years later, he announces to the minister Colbert its discovery by Joliet. After La Salle's

death, his brother, his nephew, and his heirs addressed a memorial to the king, petitioning fer certain grants in consideration of the discoveries of their relative, which they specify at some length; but they do not pretend that he reached the Mississippi before his expeditions of 1679 to 1682."

Here is another footnote with reference to the French Document (reading):

"This silence is the more significant, as it is this very niece who had possession of the papers in which La Salle recounts the journeys of which the issues are in question. Had they led him to the Mississippi, it is reasonably certain that he would have made it known in her memorial. La Salle discovered the Ohio, and in all probability the Illinois also; but that he discovered the Mississippi has not been proved, nor, in the light of the evidence we have, is it likely."

Next authority I refer to is Joutel upon question of difficulty in use of Desplaines. He described difficulties as chiefly excess of water in the river. Will add another to list It is account which Joutel gives of failure of men from Montreal to pass Desplaines. All the difficulties Joutel records proceeded from this one cause, excess of water and too rapid current. He points out they came to rapid
4689 stream which obliged them to go ashore. Then into water, dragging canoe along; that he hurt one of feet against rock which troubled him long time; that they were under necessity of going into water often causing him to suffer extremely, more than he had done since their departure from Gulf of Mexico. As to La Salle's statements about difficultyof using Desplaines in summer and mid-April and there being no water in it at all in the summer time, there is generally corroboration of La Salle's narrative in
4690 Joutel. Believe difficulties described by Hubbard on his first trip are about same in character as those encountered by Joutel. Taking the authorities chronologically, next to Joutel would be men he speaks about in that year or preceding autumn. Joutel's account of men from Montreal summarizing on page 196 of Stile's edition of Joutel, is that in December two men arrived at the fort from Montreal and they came to give notice to Tonty that three canoes loaded with merchandise, powder and ball, etc., had been brought
4691 to Chicago, but there being too little water in the river and this being frozen, they could come down no lower

and so they desired or they informed Tonty it was necessary to send men to bring them. Tonty sent some forty Indians and the goods were transported presumably to the fort from Chicago. Might point out in this connection here is bit of evidence in answer to question asked me sometime ago as to character of boats in which early explorers navigated lakes. These men evidently went in canoes, and men of St. Cosme's party also went in canoes. Next chronologically, Marquette's surgeon. Referring to Vol. 59 of the Jesuit Relations, p. 183, page containing Dr. Thwaite's translation of concluding portion of Marquette's journal of second expedition under date of April 6th, stands in margin and I think is by Marquette himself because I find on opposite page a French
4692 indication of April (reading):

"We have just met the surgeon, with a savage who was going up with a canoe load of furs; but, as the cold is too great for persons who are obliged to drag their canoes in the water, he has made a chache of his beaver skins, and returns to the village tomorrow with us."

Would observe water was too high at this time; that surgeon, who apparently had been spending winter in region below Chicago, was now attempting to bring canoe load of furs up Desplaines river and found it necessary to pull canoe in water as Joutel has described that his party found it necessary to do. Just preceding this, Marquette speaks of the height of the water, page 181, 31st of March (reading):

"The very high lands alone are not flooded. At the place where we are the water his risen more than 12 feet."

4693 Tonty would be next. This is a document entitled "Relation of Henry de Tonty, Enterprises of M. de laSalle, from 1678 to 1683." Relation written at Quebec or from Quebec 14th November, 1684, by Henry de Tonty, found in Margry, vol. 1, p. 573. Passage have in mind occurs on page 612 and circumstances are these; that La Salle had been down to the mouth of the Mississippi river in 1682 and on return fell sick and tarried for time at Fort Prudhomme, which I believe was somewhere in region of modern Arkansas; here he sent Tonty ahead to his fort, and Tonty comes up the Illinois, then to Lake Michigan and finally to St. Joseph river (reading translation of the original French):

"On the 18th being in sight of the village the chiefs came out to see me and we went in company to the

village. The 20th after having made them son
present I set out and arrived on the 27th at the Villa
of the Illinois, which we found abandoned because
the fear which they had of the Iroquois. The wate
being very low, I was obliged to abandon my canoe a
to walk on land to gain the lake which is at forty leagu
from there."

Understand then Tonty came up in canoe up Illinois riv
to Illinois Village, which would be approximately Starv
Rock, and was forced because water was low to abando
canoe there and walk to lake. Further, that when he got
edge of lake found Outagamie Indian who sold him his can
and so presumably in this canoe he states he gain
4694 the river of the Miami; that is, the modern St. Josep
Month is given. On page 611 I read, immediately pr
ceding (reading):

"And as there were pressing affairs at the river of t
Miamis, I started on the 4th of June," with the man name
and then it goes on to give an account of the passa
4696 up the Illinois. The 18th of June it would be. Will a
to list of sources, or of travelers, Schoolcraft's accou
of traders he met. Understood Tonty was going, at ti
mentioned in passage I read just previous to adjournme
last night, from point where he left La Salle at Fort Pru
homme or thereabouts on the Mississippi up the Illinois
Lake Michigan, and thence to the Fort on St. Joseph riv
His ultimate destination was either fort on St. Joseph
Mackinac. He went on to Mackinac later. Would suppose
left Illinois river at junction of Illinois and the Desplain
That supposition is based on inference or a deduction. Pa
sage states that he arrived on the 27th at the Village of t
Illinois, which he found abandoned through fear of Iroquoi
Waters being very low, says he was obliged to abandon h
canoe and walk on land to gain lake, which is 40 leagues fro
there. Would judge from whole passage it is contenti
of witnesses for United States he left river at Village
Illinois; think in general have no occasion for dissenti
4697 from this, that in passing up and down this gener
route they followed along the river. If traveler was
Starved Rock and destination was Chicago, he would be like
to come up general Illinois-Desplaines route. Since Ton
went on land, he may not have done this. Think no o
can say just where he left river of Illinois. Think he aba
doned his canoe at Village of Illinois. That would be approx

mately in neighborhood of Starved Rock. Would say this is very brief description of this passage, statement being: having arrived at the Village of the Illinois on the 27th, and finding it abandoned, he goes on to say:

"The waters being very low I was obliged to abandon my canoe and to walk on land to gain the lake, which is at forty leagues from there."

Assuming village of Illinois was in neighborhood of Starved Rock, would be some distance below mouth of Desplaines; not able to give exact distance without verifying it. My
4698 impression is some thirty miles would be approximately correct. Would not say there is nothing to show route which Tonty took overland from that point. He made a passage, evidently of forty leagues to the lake. He evidently did not come out at the lake at the mouth of St. Joseph river, as further it says he had good fortune on edge of lake to find Indian who sold him his canoe and then he gained the river of the Miamis. I gave what I supposed would be a reasonable deduction; that he came up this general river route at that time; is entirely possible, there being no mountainous country in this vicinity, that he may not have stuck to the river. Do think it reasonably certain he came out at this southwestern corner of Lake Michigan at some point. Any deduction drawn as to route followed by Tonty must be based merely on inference and evidence that occurs in the document, part of it being statement that he came out on the lakes somewhere and took canoe to reach the St. Joseph
4699 river; also, that this place is forty leagues from lake; he abandoned his canoe; assume it fair to say at this place, already pointed out; walked forty leagues to lake. We know that making a trip from Starved Rock to lake, a forty league trip, one would come up in general along the line one would naturally draw between here and Starved Rock. Am not attempting to show he used Desplaines. Cited this for the reverse; that he did not see the Desplaines. May have walked along bank or may have taken a bee-line; just where that bee-line would take him there is no way of showing. Should judge he could not have followed the Kankakee very far, for he came out at the lake after walking forty leagues. If he followed Kankakee there would be no sense in his coming out to lake at all; he would have followed it on up, unless he cut across the country which is possible. Tak-
4700 ing up Joutel, would say I intend to materially revise my estimate of the Joutel narrative, for, on looking over

original narrative in Margry, Vol. 3, which Alvord referred to in the paragraph he cited at transcript 106 (Abst., 45), I observe that the English translation of Joutel which was used principally in the case is not a reliable and accurate account of what Joutel really wrote. Turning to Margry I find conclusions I have drawn and statements made and others have made in this case, based on English translation of Joutel's Journal, which has been used principally in the case, must be materially modified; that they are inaccurate in certain important respects. Most logical way of taking this up would be to present bibliographical side first, page 240, Vol. 4,

4701 Winsor's Narrative and Critical History, occurs some account by editor, Mr. Winsor, of the Journal of Joutel; having referred to preceding document to get connection, I read (reading):

> "It is thought that a Journal by Joutel was written in parts to counteract the statement of the Dernieres decouverts. This Joutel paper was given first in full by Margry, (Footnote 5), and Parkman says of it that it seems to be 'The work of an honest and intelligent man.' (Footnote 7.) It was printed in Paris in 1713, but abridged and changed in a way which Joutel complained of, and bore the title, Journal historique du dernier voyage que feu M. de la Salle fit dans le Golfe du Mexique, pour trouver l'embouchure du Mississippi. Par M. Joutel."

Turning to Footnote 8 (reading):

> "In 1714 an English translation appeared in Paris, as a journal of the last Voyage performed by Monsr. de la Sale in the Gulph of Mexico, to find out the Mouth of the Mississippi river; his unfortunate Death, and the Travels of his Companions for the Space of Eight Hundred Leagues across that Island Country of America, now call'd Louisiana, translated from the Edition just publish'd at Paris."

Would say now have in hand what appears to be this 1714 edition Joutel's Journal.

4702 I turn to page 47 of the English translation of 1714 (reading):

> "The Preface. Written by Sieur de Mitchell, who methodiz'd this journal."

Winsor says it is work of an honest and intelligent man, and at page 397 Parkman's La Salle, 1896 edition, footnote

2, the chapter dealing with La Salle's assassination, I read (reading):

4703 "Of the three narratives of this journey, those of Joutel, Cavelier and Anastase Douay, the first is by far the best. That of Cavelier seems the work of a man of confused brain and indifferent memory. Some of his statements are irreconcilable with those of Joutel and Douay; and known facts of his history justify the suspicion of a willful inaccuracy. Joutel's account is of a very different character, and seems to be the work of an honest and intelligent man. Douay's account is brief, but it agrees with that of Joutel in most essential points."

I now turn to the original French of Joutel's Journal, Margry, Volume 3, page 480, "travelers have come to Fort Lewis from where La Salle was assassinated to Canada." I do not attempt to make a hard and fast literal translation, but give what seems to be the force and meaning

4704 of this narrative (reading):

"M. Cavelier having spoken to Boisrondet to find for us a canoe and people to conduct it for us, as there was little time to lose because the season was advanced and it was necessary to act diligently, the Sieur told us that he had a canoe having bought it in the expectation of going to Canada in the spring, seeing that they had thought us all lost or dead, but that the difficulty would be to get men or have men who were expert enough; seeing that all those who were with Monsieur Tonty.

Nevertheless three men offered to conduct us. One was a blacksmith engaged by Tonty and La Forrest in whose hands La Salle had left the fort, as also that of Frontenac."

Cavelier objected to the blacksmith leaving on account of his usefulness at the post. They fixed that matter up and found another blacksmith, and paragraph concludes with a reference to necessity of taking food and skins on their way to Mackinac, hence the desirability of having a canoe

4705 (reading, page 482):

"To continue the recital of our voyage, the Sieur Boisrondet, the clerk of M. de La Salle, proposed to the chiefs of the Shawnees to give us some of their people in order to carry the goods to the entrance of the lake of the Illinois, distant from this fort about 35 or 40 leagues, for the reason that in this season there was

no water at all in the river, or at least very little, this being a troublesome matter.

It is not the same in descending, for the navigation is very fine as far as the River Colbert, where there are almost a hundred leagues without any fall or rapid. About five leagues above the said fort there is a rapid and one is obliged to take in order to descend or ascend it a certain time.

Which is ordinarily the spring time or the autumn after some rain, seeing that the said river forming itself from many other little ones, becomes shallow since these have drained away, or when these little ones have drained away. The chief of the Shawnees having promised us some men, we disposed everything for the departure."

4706 He then speaks of paying the Indians who assisted them in their passage to Fort Lewis (reading page 483):

"Everything being arranged, we proposed to depart or intended to depart."

On page 484, that section of the chapter reads (reading):

"Wednesday the 17th there arrived three men in all haste from Mackinaw."

This is the 17th of September, and not December as the English translation of Joutel's Journal makes it, "and as I remarked above or before that there was hardly any water, (possibly that should be no water at all in the river,) they had been obliged to leave their canoe at the edge of the lake." (Reading):

4707 "This came about or happened quite conveniently," the effect of the remainder of the sentence being I will say, that they could change their own canoe at Fort Lewis for the one which these men had left at the border of the lake, and therefore the latter were content with this arrangement, so that on the 18th, Thursday, having prepared all their little equippage, they took leave of those who lived at the fort and to the number of eight Frenchmen they departed. The five who were in the Joutel party and the three who were to conduct them to the lake, and along with these a dozen savages who were going to carry their goods or food, and some twenty-five or twenty-six otter skins, and also some beaver skins which they were taking with them in order to procure food and other things at Mackinac, and other points on their journey in case they should have the opportunity or find the need for them.

It seems evident from the narrative that these men came down from Montreal to Chicago in September rather than December; failed to carry goods in canoe down Desplaines, not because river was frozen, one reason assigned in Stiles Edition of Joutel, but because there was no water in river, the other reason given in Stiles Edition.

4708 Joutel's party would doubtless have gone from Fort Lewis to Lake Michigan in a canoe had that been practicable, for they engaged canoe at Fort Lewis and men to carry goods to lake at which point they were going to launch canoe and proceed on journey to Mackinac.

Another consideration was their inability to get skilled canoemen. Evidently ordinary men could not make the passage up the Desplaines, which may have had something to do with decision to make portage rather than go up the river. Members of party themselves evidently not at all skillful.

The next paragraph deals with their further fortunes in their trip to Chicago. I read, comparing the original in Volume 3, Margry, 485, to the translation appearing at transcript page 106 (Abst., 45). There is evidently some error in

4709 the translation. With both passages before me I undertake to give the substance of original text (reading):

"We continued to travel until Thursday, the 25th"—

The March, 1687, which is put in the translation in parentheses is not found in the original, and the month given there is obviously erroneous for this is not March but September, this being the continuation of the recital of the fortunes of this Joutel party in the autumn of that year.

(Continuing reading):

"Until the 25th, when we arrived at the place called Chicagou, which, according to what we were told, took its name from the quantity of garlic which grows in the woods in that region."

(Reading):

"There is there a little river which is formed of the waters that drain from a great prairie or field at this place, and which takes its course towards the lake named, as I have said elsewhere, Illinois or Michigan. About three or four leagues away on the other side of the great prairie, the waters discharge into the Illinois river and form that."

4710 I now read from another translation of this, than that appearing in the record.

COUNSEL FOR DEFENDANT. It is one of our memoranda; it is not a published translation.

Mr. CRESSY. Whose translation is it?

The WITNESS. It is Miss McIlvaine's translation, I understand.

COUNSEL FOR DEFENDANT. The thing is, doctor, if you adopt it as a correct translation.

A. (Reading):

"It seems that this place must be the highest between the Gulf of Mexico and the River Saint Lawrence, seeing that the waters take their course from this place to go on the one side and on the other, so that the higher the waters are the less there is to carry."

Summarizing the expedition, they found the canoe which the Frenchmen had left at the lake, embarked in it and undertook their journey, failed turned back and made way to fort on Illinois and passed winter there. Next spring same party set out from Fort Lewis up river to Chicago; difficult
4711 because of excess rather than lack of water in Desplaines.

As to whether counsel for government is correct in saying that I mean that Joutel wintered at Fort St. Louis and came up again in the spring I will say am speaking of party which this Joutel narrative deals with. On page 489 Margry, it appears that after their failure to continue journey, they returned to Fort St. Louis, arriving October 7th. Page 497 of the account speaks of men coming from Montreal to the fort with information that they left canoes at Chicago, where Joutel's party had made their cache. That there was
4712 too little water in the river and that little was frozen.

As to how Joutel states he came back to Fort St. Louis from Chicago, it appears in 3 Margry, page 489, that they put their canoe on an eschafaud, (trestle) following which they retraced their route to Fort St. Louis.

4714 Chronologically the next authority I suppose would be St. Cosme, who came in early part of November. The nature of the difficulties he encountered appears from Shea's Early French Voyages, page 54 (reading):

"On the 24th of October, the wind having fallen, we made our canoes come with all our baggage, and perceiving that the waters were extremely low, we made a cache on the shore and took only what was absolutely necessary for our voyage, reserving till spring to send

for the rest, and we left in charge of it Brother Alexander, who consented to remain there," and so forth. Difficulties appear to have been due to lack of water in Desplaines river.

As to whether St. Cosme made portage from the Chicago to the Desplaines, which he describes as one of about 3 leagues, would say St. Cosme says:

"The next day we began the portage which is about three leagues long when the water is low and only a quarter of a league in the spring."

I suppose it is a fair conclusion since water is evidently low at this time that he portaged three leagues from the Chicago to the Desplaines.

4715 At this point the boy became lost; St. Cosme left party to go back and hunt for boy; party went on without him.

On page 56 it is simply stated:

"I set out the 2nd of November in the afternoon, made the portage and slept at the River of the Illinois."

Do you understand St. Cosme was using boat on this trip; was going on land. He merely had stayed at Chicago to hunt for boy and started out to catch up with the party which had gone on ahead with the boat. Reading further, St. Cosme evidently also had a boat (reading):

4716 "We went down the river to an island. During the night we were surprised to see an inch of snow and the next day the river frozen in several places, yet we had to break the ice and drag the canoe, because there was no water; this forced us to leave our canoe and go in search of Mr. de Montigny, whom we overtook next day, the 5th of the month, at Stag Island (Isle aux Cerfs). They had already made two leagues portage, and there were still four to make to Monjolly, which we made in three days and arrived on the 8th of the month. From Isle a la Cache to Monjolly is the space of seven leagues. You must always make a portage, there being no water in the river except in the spring."

There are evidently two names for the island or islands. He speaks of Stag Island first and then he speaks of Isle a la Cache. Have never taken time to locate that island. Where he says, "We went down the river to 4717 an island," do not know what that might refer to.

In the manuscript account Hubbard left of this same passage of Desplaines the matter is presented materially dif-

ferent from the passage appearing at page 41 of Hubbard's life, which reads:

"Our boats being again loaded we resumed our voyage down the Desplaines until we reached Isle La Cache where the low water compelled us to again unload our goods in order to pass our boats over the shoal that here presented itself."

The manuscript states that "it was about a week before our boats were again loaded and ready to descend the Desplaines, the water of which being low floated the boats but short distances before it became necessary to lighten them, often taking all the goods out and passing the boats on rollers over the ripples to floating water."

4718 Evidently from this account they did not make a continuous voyage from point where they entered Desplaines until they reached Isle la Cache.

As to whether the whole account just read from Hubbard manuscript, refers to the whole length of the Desplaines, from the Chicago portage down to the mouth or whether it refers to the Desplaines from the portage down to Isle la Cache will say the whole account from which I have read refers to whole passage to Starved Rock on the Illinois river, but it is plain they made more than one portage.

4719 Without looking it up cannot state distance from Chicago portage to Cache Island. If I suppose it was 20 miles, that fact coupled with St. Cosme's description of other portage, would not satisfy Hubbard's statement that they only proceeded short distances. Since Desplaines is about fifty miles long from the portage to its mouth, it is hardly reasonable to interpret twenty miles as a short

4720 portion of the distance. If they made frequent portages, they could not have made many twenty mile passages in the whole length of Desplaines from portage to its mouth. (Reading):

"During the night we were surprised to see an inch of snow and the next day the river frozen in several places, yet we had to break the ice and drag the canoe because there was no water."

I find no inconsistency between those statements of St. Cosme's account which would lead me to look upon it with suspicion. The historian necessarily and properly takes into account the character of the sources and circumstances

4721 under which produced. This is a letter written by a traveler on a journey under primitive conditions and

circumstances. Therefore could not expect it to be written with finish and care of an essay of Macauley or Emerson. I would not say that that statement would cause me to suspect the veracity of St. Cosme.

As to my conclusion whether St. Cosme took his canoe out of the water at that point, I imagine if there was no water there he would find it difficult to take it out of the water unless he was a magician. I do not conclude that the passage means there was no water there; I have drawn no conclusion as to that. I suggest this as a reasonable
4722 common sense interpretation. He says there was snow during the night and the next day river was frozen. If it was frozen there must have been water to freeze. Then he says they had to break the ice and drag the canoe because there was no water. I suppose he meant that there was no water in a position available for floating canoe in it. There must have been congealed water in the form of ice. It is not improbable there may have been water under the ice.

Q. On that assumption, what do you conclude [illegible] whether or not they pulled the boat along in the water or took it out and carried it along the land?

Objection; narrative leaves nothing for deduction.

A. I conclude they dragged the canoe.

4723 Q. In the water or along the land?

Objection, incompetent, immaterial and irrelevant.

A. I should not undertake to draw a conclusion on that point. It seems to me it is hair-splitting. No conclusion warrantable. They were dragging the canoe evidently because it was impracticable to paddle it.

Suppose dragging the canoe would amount to making portage in usual sense. Believe there is a technical application of the word that travelers distinguish and call a transportation of this sort along the river by another term, but waiving that I suppose it would be reasonable to consider that a portage, if not a portage a carriage.

4724 As to whether the part of St. Cosme's party who had gone on ahead, portaged from the island where they stopped and found the water frozen, and so forth, the statement is they had already made two leagues portage and there were still four to make to Monjolly.

Q. Do you think they began their portage at that island?

Objection; incompetent, irrelevant and immaterial.

A. If counsel asks the basis of my statement of the number of leagues portage which St. Cosme said they made, I can

answer quickly. I simply added up the different statements, made here and found it totaled 17 leagues and a fraction; then turned to the other letter and found the statement that they made a portage or portages of fifteen leagues, and I said the two accounts corroborated each other well in that respect. That was the basis of my testimony.

4725 Don't know where the island was. As to the length of portage made by the parties that went ahead, he says they had already made two leagues portage, and there were still four to make. Further down he says:

"From Isle a la Cache to Monjolly is the space of seven leagues. You cannot always make a portage."

Evidently there is some discrepancy between last statement and result which would be reached by adding up figures given in preceding statement. I am not certain the two statements referring to same part of river.

4726 I can determine what the account says as to the number of leagues made by either party. I suppose they had no surveyor along to actually determine distances they portaged and floated, assuming they floated at all in the stream. One must make allowance for statements as to distances which travelers on such an expedition leave; would suppose men having gone down the river in this way were familiar in general, and the writer of this letter was, with the circumstances which attended the passage he made down the river.

Q. But you have not answered my question, my question whether or not you can determine from the figures there set out, the number of leagues of actual portage, without

4727 first being able to ascertain whether or not the place where the portage was made was between Cache Island and Monjolly?

After colloquy of counsel, question withdrawn and this question substituted:

Q. Did you in computing the number of leagues of portage that St. Cosme's amount shows he made add the 7 leagues mentioned as the distance between Cache Island and Monjolly to the other 6 leagues mentioned in the previous passage?

A. I believe I did in the calculation based on St. Cosme's letter itself. The other calculation was not a calculation but merely a reading of La Source's statement that they had to portage fifteen leagues, or to that effect; whatever the exact wording was.

I understand Cache Island is above Mount Joliet. St. Cosme's account states when he caught up with the remainder of his party, they had made 2 leagues portage, and that there were 4 more to make to Mount Joliet, "which we made in three days and arrived on the 8th of the month."

It follows that the distance from Cache Island to Mount Joliet is 7 leagues. From the consideration of this passage alone, I suppose it is a reasonable construction that what St. Cosme means is that when he caught up with the party, they were making the portage of six leagues between Cache Island and Mount Joliet. Would consider it a prudent operation to first locate these various islands; I suppose it would be reasonable to construe the passage as meaning that when he caught up with them, they were four leagues from Mount Joliet. Possibly if I had a map of the Desplaines showing these various features, it might lead me to another interpretation. In accordance with the answers I have given, I would be inclined to say that there was a distance from Cache Island to Monjolly in which six leagues of portage were necessary. We have in the account a mention of a portage of about three leagues from the Chicago to the Desplaines, and a portage of six leagues from somewhere above Monjolly to Monjolly. On the basis of the construction assumed, I believe it is correct. The next mention of a portage is a short one of about a quarter of a league some distance below that. The next one is a portage of one league; it states:

> "On the 10th we made the little portage and found half a league of water, and then two men towed the canoe for a league; the rest marched on land, each with his pack."

Next it says they "stopped for the night at a little portage five or six arpens off." I believe there was no more portage before they reached Kankakee. According to a note, an arpen is about 200 feet. Three leagues from the Chicago to Desplaines; six between Cache Island and Mount Joliet, or just above Monjolly; a quarter of a league some distance below; one league below that and five or six arpens in addition, makes a total of somewhere between 10 or 11 leagues. However, I have not given any opinion as to the location of Cache Island, of which on the basis of that computation, three leagues would be the distance between the Chicago and Desplaines, leaving 7 or 8 leagues

of portage altogether between the time they embarked on the Desplaines and the time they reached its mouth.

As have pointed out, am not prepared to locate Isle a la Cache, therefore am not prepared to say that the computation is correct.

4734 Counsel is aware that I am speaking in ignorance of the exact location of these features of the river that are referred to here. I point out in this connection that Tonty was the conductor of this expedition, and preferred the route by way of the Root river and the Fox, with the expectation of a nine league portage with the view of shortening their way.

4735 Being asked to give my computation of the portage in miles will say LaSource made the statement about 15 leagues of portage. Referring to LaSource's letter, page 83, I read (reading):

"We left there on the 27th to return to the Tonicas;

4736 Mr. de Montigny and Mr. de St. Cosme resolved to go up together to bring down the things left at Chicagou where Brother Alexander had remained to guard them, because there was no water in the river of the Illinois. We brought only a canoe load of absolute necessaries, which we had to carry for the distance of fifteen leagues."

Do not see whether it is finally evident whether the 15 leagues includes the crossing of the portage or whether that applies only to the crossing of the Illinois. In the former case it would be something like 45 miles; in the latter case something like 36 miles, assuming for convenience that the league is three miles, which is not quite exact.

4737 Counsel's computation is not an inevitable one, that they portaged something less than 36 miles, out of a total of 50 miles, or something less than 50 miles between the Chicago portage and the mouth of the Desplaines.

The total length of the Desplaines from the portage to the junction with the Kankakee, is something less than 50 miles, in the neighborhood of 15 leagues. See no particular reason for bringing into this computation the element of 60 miles at all, for it is plainly evident that they did not make a portage from the edge of Lake Michigan up to the south branch of the Chicago river, at least, if they did, there is no mention of it and I am not aware that it was ever done in the summer season. Assuming they had begun the portage when they left

the south branch of the Chicago river, it would be something like 15 leagues out of something over fifty miles.

4738 I have before me a map entitled: "Map of the counties of Cook and DuPage, and east part of Kane and Kendall, and north part of Will County, compiled by James H. Reese, Land Agent, Chicago, Ill., 1851." The map shows Cache Island to be located on the township line between Townships 36 and 37 North, Range 10, east of the third P. M. in Will County, Illinois, between the Towns of DuPage and

4739 Lockport. Cache Island is in the Desplaines river on the township line.

4740 Leaving sinuosities out of account and making such calculation as I am able on the assumption that the Desplaines ran in a straight line, I would make it about 12 miles from the point where the portage reached the Desplaines river to Cache Island. Would add in this connection that La Salle says the Desplaines is a crooked river. The basis for my statement, that St. Cosme's party deliberately planned to go by the Root and Fox river route, thinking they would shorten their way to the Mississippi, is as follows: Pages 50 and 51 of the volume in which the letter appears shows that they left Milwaukee on October 10th; the narrative shows that some Indians had led them to suppose they might ascend by the Kipikawi river (reading):

4741 "Some Indians had led us to suppose that we might ascend by this river, and that after making a portage of about nine leagues, we could descend by another river called Pistrui, which empties into the river of the Illinois about twenty-five or thirty leagues from Chikagu."

There is a foot note, No. 16, which refers to the Root river as being the one which empties into the lake at Racine. Continuing the narrative (reading):

"We avoided this river, which is about twenty leagues in length, up to the portage. It passes through quite pleasant prairies, but as there was no water in it we judged sagely too that there would not be in the Bestikwi."

The WITNESS (continuing). Foot note 17 refers to the Fox or Pistakee river (reading):

4742 "And that instead of shortening our way, we should have had to make nearly forty leagues of the way as a portage. This obliged us to take the route of Chicagu, which is about twenty-five leagues from it."

I should say the whole passage in a general way shows that they deliberately planned to take that route. Perhaps one might so consider if he preferred. They considered it in the light of shortening their way as compared with the other route. They rejected it because they found the river dry and inferred therefore, that the other would be, necessitating a forty league portage, as they believed. Am not certain they considered it because they had been led to suppose it would shorten their route between the lakes and the Illinois. They apparently rejected it, because they be-
4743 lieved it would necessitate a forty league portage which I presume they did not expect to encounter on the Desplaines, so they evidently concluded the Desplaines would be easier than the one they thought they would have to make with the forty league portage in view, not nine leagues. I point out that this sentence, "This obliged us to take the route of Chicagu," seems to have considerable significance. Evidently, they preferred to go the other way, but for the belief that the 40 league portage was necessary. That is, they would have gone the other way if the condition had been one necessitating a 9 league portage only.

4744 As it was in the actual passage of the Desplaines, they portaged about 15 leagues. The 15 leagues was in LaSource's general statement. 10 or 11 was arrived at by striking off the three across the portage, was it not?

Q. Oh, no, that included the three. It was eight without that.

A. I think that was the nature of the computation from St. Cosme's account.

Chronologically, the next authority as to difficulties would be Charlevoix. His letters of September 14 and 17, 1721; I believe he wrote these letters on the St. Joseph; I believe he was coming down from Canada or Mackinac on the trip in the direction of the Mississippi.

4746 The letter dated the 21st of July, 1721, is headed on Lake Michigan, begins "I started from Mackinac." He is evidently on the way from Mackinac to St. Joseph. The next letter is dated River St. Joseph, August 16th, 1721, so sometime between July 21st and August 16th, 1721, he arrived at St. Joseph river. I believe he then started out in the lake and put back in to the St. Joseph, having intended

to go to Louisiana, going to coast the south side of Lake
4747 Michigan on way to region of Chicago, though not directly stated here. He says he put out 3 days ago, which would be that long before September 14th. These letters in which he mentions the Desplaines river were dated on September 14th and 17th, respectively. So far as the account goes, Charlevoix had never been in Chicago, nor I pre-
4748 sume on the Desplaines. I suppose his statement that the Desplaines was a mere brook was based on information gained from some sources. So far as I am aware, not based on personal observation.

As to whether I would regard his statement as more than suggestive, I should say: I would regard that as a statement of what Charlevoix believed to be the nature of the geography of this particular portion of Illinois and the river which he was referring to.

As to whether as a historian reading that statement I would take it as anything but suggestive, I would ask if counsel means would I say that settles the matter, would I suppose that that established the facts.

Whereupon counsel made the following statement:

That has been the distinction as nearly as I can make it out. Some statements you would accept as true, take them at their face value; others, as near as I can make out, you historians say are suggestive, and you have to go through and check them up with other facts and make critical studies of the works and find out the standing of the authors and so on, and then determine whether or not they are to be given credence as a result of all this study. Now, I want to know how you treat that statement of Charlevoix's.

Whereupon the witness replied:

Without assuming to enlighten counsel but simply to make myself clear in the record, I will say that any statement by any historian and the work of every historian is prop-
4749 erly subject to critical examination; and that in case anything that any historian whatever has said is called into question, or there is any reason for calling it in question, it is properly subject to investigation and confirmation.

Or of being overthrown, whatever the result of the investigation may be. I would say further, however, that just as in ordinary life, we will for practical purposes accept the statement of one individual as true and decline to accept the statement of another individual as true, depending upon the

reputation of the individual involved. However, in ordinary life, if a statement of an individual, however high his reputation is, is put in question, it is fair and proper to criticise and undertake to determine the validity of the statement under consideration.

As to accepting some historians without criticism and declining to accept others without criticism, then, that is the only point involved in my mind. If a man like Justin Winsor makes a statement and a man like Mr. Drown makes a statement, and I am speaking of historical statements, one would naturally accept Mr. Winsor's statement with more confidence than he would that of Mr. Drown because of the higher historical standing of Mr. Winsor as compared with Mr. Drown,

But I know of no historian who holds that the works of
4750 any writer whatever are sacred and not subject to criticism. As a matter of fact, historians every day and commonly in their work do subject the statements of the writings of other historians, however high the reputation of the man may be, to examination and criticism. That in a general way is what I have in mind in making the distinction so far as I have made it, that counsel calls attention to.

Whereupon counsel for the Government made the following statement:

Q. But my point is this; you have said that looking to the means of information perhaps you would take certain statements made by men like Charlevoix as to matters within their personal observation to be true, in the absence of any evidence to the contrary. You have said that other statements not based on their personal observation you would regard as suggestive merely, if I gathered your distinction right. Now, I want to know in which class you put that statement of Charlevoix?

A. In answering the question I think it will be proper and desirable to say something further by way of explanation along the line I was talking of a moment ago. As a matter of practical necessity one must accept tentatively at least the statement or statements of writers and speakers as valid. One would never get anywhere in his work whatever if he must personally verify every fact or detail which came into his hands and statements of writers whose works he
4751 was using. He therefore is of necessity forced to accept statements tentatively at any rate as if they were valid and he would be likely to question or criticize those statements which pertain to the point or investigation which he has in

mind that he is interested in. Do not think have said, and if have, would here withdraw statement which counsel has attributed to me, that I would accept statements of Charlevoix as true. If counsel is referring to this particular statement, perhaps would have another explanation to make with reference to it. Whereupon counsel stated that he was referring to said statement, to which the witness replied as follows: I am not aware that there are many things in Charlevoix work, statements as to detail, that are not correct. Charlevoix went astray as other historians do, and probably more frequently than some other historians. I take it that what counsel is getting at is the reason why I attach any validity to this statement of his.

Q. No, my question is now, in which category would you put it? Do you consider it by putting it in the category of suggestive statements which must be verified before you accept them, or do you put it in the category of statement which will be accepted unless you find evidence to the contrary?

4752 A. I understand this statement was made because it was simply "in the air" and therefore was given as a matter of common knowledge which probably the writer did not stop to think about at all, or probably did not think would be questioned at all, that this river in a portion or part was a rivulet or brook, the word he used being "ruisleau."

Therefore that it is unconscious evidence as to the information which Charlevoix has gained, and that apparently was afloat over at the other side of the lake, as to the character of the Desplaines river.

As to which category of those two I put it in, would say any statement whatever that is open to question, or concerning which a question has been raised, would necessarily need to be examined, and one's decision upon its validity would of course depend upon the result of his investigation.

As to whether the mere fact that the statement is not based upon the writer's or explorer's own knowledge is not enough to require that it be put in the class of suggestive material. would depend, I would say, entirely on circumstances. I would not hold that if this were all we knew about the nature of the Desplaines river, if this was the only evidence we had, that this statement of Charlevoix would be enough to

4753 establish as a fact or as proof that the river was such as he has indicated here.

Q. Oh, no, but which class would you put it in, to begin

with? You have made the distinction and I want to know which class now you would put it in.

Objected to, because it assumes that the witness has made a classification which he has not made as I understand the evidence.

COUNSEL FOR DEFENDANT. Is that correct, Dr. Quaife?

A. I am a little up in the air just at this point; I am not quite sure as to the classes counsel is asking about, and what I have said, or what he thinks I have said about them.

Q. Did you not make first of all this broad classification between historical sources or sources of historical knowledge, or perhaps it is not first of all,—but did you not make this classification between the sources on the one hand which you would accept, unless you found evidence to the contrary; and on the other hand, sources which you would regard as merely suggestive and wait corroborated by other evidence before you would accept them?

A. I would like to have the reference to the record if counsel will give it.

Q. I have not got any reference; I merely ask if that is not one of your principles.

4754 A. You do not mean to ask, then, whether I made that statement of it?

Q. No, I do not mean to ask you whether you made that statement, but I caught that general impression from your evidence. You have said several times that you would regard material as suggestive; that is what I mean.

A. The whole point I have in mind in that connection is simply this, and I tried to state it a few minutes ago, but evidently failed to give a lucid explanation. The historian deals with his sources in somewhat the same way that in ordinary life we deal with individuals around us. If in ordinary life the person who is notoriously unreliable or evidently unreliable, makes a statement to us, we hold a somewhat different attitude with reference to its validity than the attitude which we hold with reference to the validity of the statement, such a man like Mr. Gunsaulus, or Graham Taylor, for example, might make. That is about the only distinction that I would make in connection with this historical work. If a man or a source, and of course there is always a man back of a source, seems, in general to be worthy of credence, and if there is no evident reason for doubting or questioning the statement or statements he makes, one would be inclined to accept it tentatively at least. If the reverse is true, he would be inclined

to view it with more suspicion and to simply hold it as suggestive until he had confirmed or repudiated it.

4755 I believe a distinction is made between authorities on the ground that the matter with which the authority deals is within the personal knowledge of the writer, and as to matters which are not within the personal knowledge of the writer. I believe such a distinction is commonly made by historians, and I make such a distinction.

4756 Having that classification in mind or that basis of classification, as to whether I would put this statement of Charlevoix's in the class of material which requires verification before being accepted, or would put it in the class of material which is to be accepted unless it is found to be untrue, would say those are counsel's classifications, I believe. I have undertaken to make clear the classification I would make; it is rather an attitude of mind than classification; I think the record will show that clearly.

As to whether I said yesterday that there were certain statements of La Salle which I went over and which I would accept unless they were shown by some other evidence to be erroneous, and that there were others which I would regard as suggestive merely, and as to whether the same distinction applies to Charlevoix, and if so how I would apply it to this passage, I would say, I would not make any distinction between Charlevoix and La Salle in this respect. Then it is a fact that there would be some of Charlevoix's statements which I would accept in the first instance unless they were proven erroneous or inaccurate by other evidence; and

4757 others of his statements which I would regard as suggestive merely until I had verified them.

In what category this statement falls depends upon what importance is being attached to the statement, or whether it is being called in question or not. I have said if the statement was called into account, no matter who makes it, unless it is self-evident, it is a fair subject of verification. Supposing I was writing a history to which this passage became pertinent, as to whether I would accept that statement and work on the theory that that statement was true unless I found evidence to the contrary, or work on the theory that it was suggestive merely and would require verification,

4758 would say the careful historian always works on the theory that things are not true unless they are established. That is to say, his habitual attitude is one of doubt and demanding proof rather than as some of our so-called historians

seem to regard this matter, one of accepting statements as true unless they are called in question. I believe counsel assumed that this would be a pertinent and important point in my history. I would certainly undertake to confirm it or to criticise it, I will say, that is, I would treat it as requiring verification before I adopted it. If I saw any reason whatever to question it, or it seemed vital to my argument to establish it, I certainly would consider that it was proper to undertake to verify it or disprove it. If I had no other information; suppose this was the first authority I had run across in my investigation of the subject, I think the expert of the United States put this matter pretty well in his treatment of this whole subject; he called attention to the fact that a dispute had arisen beween Joliet on the one hand and La Salle
4759 on the other, as to the nature of this water route, and he further pointed out, and I do not pretend to be quoting, of course, that this dispute could be settled or at any rate that the proper way to settle it would be to adduce further evidence. That argument seems an excellent one to me and I myself adopted it in my treatment of this whole subject.

Now, counsel is assuming that Charlevoix is put in the place where Joliet and La Salle have been put in fact, in the course of this investigation. I would say quite certainly it would require examination and verification. There would be no question whatever in my mind, that is to say, I see no question in this particular case; it is conceivable there might be a question,—that this is a bit of unconscious testimony that is given simply in a matter of fact way without any particular consideration, the same as one might say the sun rises in the east. That statement of course is not literally correct, and yet I suppose it is repeated every day and no one takes the trouble to dispute it or find occasion to dispute it.

Take such a statement as Flagg's that he had seen boats at St. Louis which had come down over the portage. As to whether I do not doubt that Mr. Flagg saw a boat at St. Louis and satisfied himself that it had come down over the portage, I would say that to my mind there is quite a distinction between the case of Flagg and that of Father Charlevoix.
4760 I understand that Charlevoix was about right; Flagg was recording an impression that to a considerable extent at least, was erroneous. As not aware that Flagg was writing a journal of his travels just as Charlevoix was. It is my impression he was simply copying some printed description such as we have in Morse, although he may have been

merely repeating current verbal information. I have no objection to assuming that Flagg's letter was addressed to him by someone, we do not know just whom, and published 50 years later in a newspaper. Not having the book before
4761 me, I think the statement to the same effect of Flint was not in a journal of his travels, of about the same character as Charlevoix. The title page of his book reads: "Recollections of the Last Ten Years, Passed in Occasional Residences, and Journeyings in the Valley of the Mississippi" and so forth.

Charlevoix was giving the journal of a voyage made by order of the King in North America, addressed to "Madame la Duchesse" and so forth. In that journal he was describing his travels on that particular trip he made in North America.

4762 Flint described occasional residences and journeyings in the valley of the Mississippi in the last 10 years. I go on with the title: "From Pittsburg and the Missouri to the Gulf of Mexico, and from Florida, to the Spanish Frontier. In a series of letters to the Rev. James Flint, of Salem, Massachusetts."

Charlevoix was making a definite tour. Flint is giving us more or less occasional recollections of occasional journeys. I do not say Charlevoix' statement was not open to suspicion. I believe counsel had me establish or led me to establish the assumption that it was properly open to suspicion and confirmation or rejection.

4763 Q. Then you would put Charlevoix's statement and Flint's statement both in the class of statements requiring verification, would you?

A. As I said before, all statements which may be called in question are properly subject to investigation and verification or rejection as the case may be.

4764 At transcript page 3710 (Abst., 1406), I said, "one could hardly expect to find stronger historical evidence of the non-navigability of the Desplaines, or at least a part of it, and so on."

Q. You regard that statement of Charlevoix's in and of itself without verification or corroboration from other sources, as evidence of the sort described in your answer, on transcript, page 3710?

A. Those writers who have undertaken in the Narrative and Critical History, to give us a critical estimate of Charlevoix's work, have given it a very high estimate. They pointed

out, I showed in reading this estimate into the record on my direct, that he is liable to error in certain respects and therefore the historian who uses his work should be put on his guard in those respects. Cannot see any possible motive for Charlevoix's misrepresenting the condition of the Desplaines in this letter to the Duchesse, therefore I say that this is a bit of unconscious testimony, as I believe McLaughlin has described it, and McLaughlin would have us think, and I agree with him, that such evidence is to be regarded as of value and worthy of consideration. Of course there may be other things that appear in the document to render such evidence invalid, or to lay it open to suspicion; but am aware of nothing except what counsel has pointed out, and I think I need not dwell on that, to render this statement of Charlevoix's open to suspicion. Do not care to lead anyone to think I regard a single statement such as this as establishing such a proposition, in view especially of the fact that this is in this case a vital proposition.

4766 I conceive no motive for Charlevoix misstating his belief, or improperly describing this particular geographical condition as he understood it.

That statement of mine at transcript, page 3710 (Abst., 1406), is probably not literally valid. I can conceive of stronger historical evidence than this on examination of the statement. Am willing to amend it in this form: That I would regard this as very strong histori-

4767 cal evidence as to the character of this river, the reason being that Charlevoix only 100 miles or so away from here and intending to pass down through this country to Louisiana, and presumably having made inquiry as to the nature of the route, and I suppose it is a fair presumption that the individuals over there at the mouth of the St. Joseph had some knowledge or conception of the nature of this route, states quite casually as though it were not open to question in any way, that the river is a mere brook in this place. It seems to me that is evidence that is well worthy of consideration in connection with this subject.

Q. Then one of the historical principles which you accept is that where a statement is made by a man of good standing concerning matters which he has had the opportunity to learn about from others whose opportunities themselves to know it were very good, and when no motive appears for his distorting the fact, it is very strong evidence of the truth of the fact stated, even though the work itself may contain some

inaccuracies which I understand you have stated Charlevoix's work contains?

A. May I ask counsel a question?

Q. Yes.

A. Is there such a thing or are there such things
4768 as principles in the legal realm?

Q. Very many of them, I think we can agree on that, can we not, Mr. Scott?

A. And those principles, I suppose, are capable of statement?

Q. I presume they are. I do not say that I can state them, however?

A. Then will counsel explain why the layman need engage a lawyer?

Q. Because the lawyer has usually studied those principles and if he cannot state them offhand he can usually look them up and find out what they are and can then apply those principles to the facts of the case stated by the layman.

A. Would I be far astray in supposing that at least an important part of the lawyer's function pertains to the application of the principles to specific cases?

Q. I think not.

A. I am inclined to think that is a parallel case to that of the historian.

Q. But you have not stated whether there is such a principle.

A. I am not certain whether there is or not in the way counsel has stated it.

4769 Every individual case must be examined and tested on its merits, in view of all of the factors that are available that seem to have any bearing on the individual case.

As to what is the general principle on which I work, I would say, that if counsel wants to exclude these other considerations, I am not sure that I have any objection to the principle counsel has stated, but when it comes to the application of any general principle there are many things to take into account and in each specific case these things will differ more or less doubtless from every other specific case.

As to whether that is a fair statement of the general principle, I would say, excluding as I said, all other considerations, I do not see at this moment any particular reason to object to it.

As to whether I can state the general principle upon

4770 which I work, I would say: I would not state any general principle myself except this, that the historian ought to take into consideration every fact or every source which has any bearing upon the proposition he is examining, assuming that those things are available, of course. He cannot consider what he has not available. Only those things which counsel has stated to be available.

As to how I would regard this material, I would say, I presume counsel is aware of the fact that the work of the historian in seeking to establish a proposition or to negative a proposition as the case may be, in connection with some event in the past, is frequently, if not usually exceedingly difficult, and is oftentimes absolutely impossible of consummation for the reason that he has not available and cannot procure the information that is necessary to the carrying out of his enterprise. In the application of what counsel has suggested as a general principle to any specific case whatever, there would be things to be considered which can only be considered when such a principle comes to be applied to a specific case. One would have to consider the character of the informants and the probable means of knowledge of the informants.

4771 Consider whether the thing squares with his common sense and whether it seems to tally with what other knowledge he may have of this particular subject. All such things I should say the historian would have to take into account at every step of his work. I do not mean to say that he is always conscious of all these various influences and processes; doubtless the experienced historian carries them on sub-consciously to a very considerable extent.

As to what was the character of Charlevoix's informants, and who they were, I would say that I said that Charlevoix was coming down to Louisiana by way of the fort on the St. Joseph, and since he intended to go farther on he would naturally, it seems to me, inquire about the routes. It appears further that he knew there was a choice of possible routes to take to get from the fort on the St. Joseph to the lower Illinois, and he would make this inquiry doubtless of whomever seemed to him competent to supply the information.

I would presume that there may have been at the St. Joseph at this time individuals who had some idea of the nature of the Desplaines river or the upper Illinois, as I believe he

4772 would have called it, and if not at St. Joseph, at somewhere in the course of his travels westward either at

Mackinac or elsewhere, he could and doubtless did procure information on this subject.

As to whether I really have no accurate knowledge at all as to where he got his information, I would say certainly not.

Q. And in that respect the case is just like Flagg's and Flint's is it not?

Question objected to as argumentative.

A. I would add to that answer by saying certainly not, I do not mean to withdraw my preceding statements as to what the character of the information and of those informants probably was. I would not care to say that the case is exactly like that of Flagg and Flint.

Mr. CORNEAU. Q. One possible ground of distinction between Charlevoix's source of information is that Flagg and Flint may have obtained theirs from people who actually went over the route, who came down in the boats, is it not?

Objected to as not being a question and as being an assertion of counsel.

A. In reference to Flagg, I would say that until the witness of the United States or counsel have gotten around to giving us more means of judging about him I would not
4773 care to add anything to my opinion or estimate which I gave the other day.

As to Flint I would say it is entirely possible that he got his information from men who came down in boats. I do not see and do not think that there is any reason for making a distinction between Flint and Charlevoix in that respect. Charlevoix's information may well have come from men who may have been over here on this side of the lake and seen the Desplaines river.

Q. Do you consider that Flint had the opportunity to get his information from me quite as well informed as those from whom Charlevoix may have gotten his information?

Objected to on the ground that it does not appear that there is any conflict between Charlevoix and Flint upon any question.

COUNSEL FOR GOVERNMENT. He said in effect that he did not see that the cases were parallel.

After colloquy between counsel, witness continued:

As to whether I regard the two cases of Flint and Charlevoix as parallel in respect to the opportunities of ob-

taining accurate information, I would say, no, not in all
4774 respects. As to what difference there is, I have pointed out that Charlevoix was on his way down to Louisiana and therefore shown the reason why he would be interested in establishing the character of this route. I am not aware that Flint was ever on his way to Chicago, or that he ever had any intention of coming to Chicago. There is one material difference, it seems to me.

COUNSEL FOR GOVERNMENT. That has no bearing on the reliability of the men to whom he may have gone for information has it? That would bear upon the extent of search he may have made for information.

The WITNESS. I thought counsel asked me to point out wherein these cases were not entirely parallel.

Q. I said in respect of the knowledge of the persons from whom they might have obtained their information.

The WITNESS. I do not think the two cases were en-
4775 tirely parallel. I find this difference, that if I am planning to take a journey into a region which I have not traversed hitherto, I will be likely to seek information with more diligence and care than though I have no thought of ever making such a journey. In one case I would be less likely to accept ordinary hearsay evidence, or less likely to take the statement of the casual or uninformed or ill-informed witness than I would in the other case. If in fact, these boats did in fact come down from Lake Michigan and into and down the Desplaines and the Illinois without making a portage, as to whether the men on the boats would be about the best means actually to know that, I should say that such an individual ought to know whether the boat had made the passage or not.

4776 Q. Those men who may have come down in the boats, made the passage in the boats, if the boats did come down, would be quite as reliable informants as any Charlevoix would have been apt to have found on his trip, would they not? I mean, so far as their opportunity of knowing the facts are concerned.

Mr. SCOTT. Objected to as not requiring any expert opinion.

A. The only statement of Flint that is under discussion here is to the effect that he had seen a Mackinaw skiff carrying five tons which had come from the lakes to the waters of the Illinois without a portage. I said a while ago, and it

seems to me I answered the question in stating it, that a man who was on a boat when it was making such a trip, assuming of course that he was in his right mind and took the ordinary care to observe what was going on, ought to be a competent witness as to whether such passage was made or not. I
4777 should think that answers the question.

As to whether counsel for the government understood me correctly to put Charlevoix in the class of those who attempted to use the Desplaines and failed, I would say I know of no time when Charlevoix ever actually attempted to use the Desplaines. Joutel's account of the failure of the men from Montreal would go in the statement of Joutel which I was making this morning, that is, I would put in whatever pertains to Joutel in that connection.

As to what was the purpose of Kennedy's trip up the Illinois, I would say, that the opening statement of the Journal is that they were looking for a copper mine.
4778 He apparently thought it was near the head waters of the Illinois. The title is "Mr. Patrick Kennedy's Journal of an Expedition undertaken by himself and several coureurs de bois in the year 1773,—from Kaskaskias village in the Illinois Country to the Head Waters of the Illinois river." Under entry for August 15th, page 62 is:

> "Rowed very constantly all day and arrived at the Mine River in the evening. Here I met with Mr. Janiste, a French gentleman, and prevailed on him to accompany me in an attempt up this River to discover the Copper Mine."

Mine river is somewhat farther over to the west and empties into the Illinois on the north, I believe. I believe it is west or below the junction of the Kankakee and the Des-
4779 plaines. Kennedy evidently had another mine in mind when he set out on this expedition than the one to which the entry of August 15th refers, because it was long before this that he had gone up the Illinois above the Mine river;
4780 possibly he was still searching for the same mine that he had not yet found. Do not know how much knowledge he had of this region in advance of his expedition.

As to how far up he went on the Illinois river, I would say, I judge he came to a point a mile above the Vermillion river, he says that is about 60 miles from the junction of the Desplaines and Kankakee. As to what he did next, I would say he proceeded by land tc the forks.

Q. Did he reach the forks? I ask that because I think you will find he started for the forks and met some traders and stopped there.

A. He came to a place 15 miles from the forks and then from there he went on to an island. It does not appear where the island was. There is nothing to indicate how much farther, if any, they may have gone up the river.

As to whether it is a fair construction that proceeding on land up to about that point he went out to an island which he there found and where these traders were, I would say that I would suppose the island was in that vicinity, and it seems that there he met the traders.

As to what he says about that meeting, I would reply that he said he could get no intelligence about the copper mine
4781 so he hired a French hunter to take him in a canoe to his boat. That is evidently to take him back down stream. I presume they went in a canoe. I would judge that although he abandoned his boat at a point where there was about 3 feet of water on his trip some distance below this point he returned in a canoe. Assuming that the island is below the Desplaines, he never saw the Desplaines. He attempted to go to the head waters of the Illinois; failed to get there; failed to get to the Desplaines, therefore did no physical violence to the Desplaines.

4782 It would seem not unreasonable to say that he attempted to use the Desplaines on this expedition.

4783 I presume one reason why he turned back at the point he mentioned is that these traders could give him no intelligence about the mine. However, it appears he left his boat on the Illinois, started off up by land still looking for the mine. We might infer other reasons why he turned back than his conversation with the traders. Might have gotten tired of further travel by land. If he had gone 45 miles from his boat, and could not get intelligence of the location of the mines, he may have thought he did not care to travel any further in search of it. If he had had his boat and had been able to travel in it, he may very well have gone on without regard to the information which the Frenchman gave him.

4784 I believe Heward will be the next authority in order. He leaves the difficulties he had largely to imagination or inference. He procured a pirogue at Chicago or DuSaible, having gotten across the carrying place on a rainy day in the early part of May, set out down the Desplaines, passed on

until reached a camping place; was informed by one of his men that there was so much danger that he need not be surprised if he should not return with him. It is not certain that the danger was encountered on the Desplaines, although I would call attention to the experience of the Joutel party, and to the fact that in the English translation of the Journal, it is pointed out that this was a dangerous passage and required expert canoemen and so forth. The danger in-
4785 dicated in that case is due to falls. I believe Stiles Edition puts it as due to great falls in the river. I suppose whatever they are, they are dangers incident to passage of river. He say that the carrying place at Chicago was a half a mile; it does not appear whether that was the only portage he made on the river. That was the portage between the rivers. He says "got over nearly at midday. From thence passed in the run and small lake to the River De Plain, and course turning nearly southwest." I presume that indicates he went through Mud Lake and down the run and into the water without making any portage, except the half mile statement.

4786 I believe there was no further portage after the half-mile portage. At least it does not appear by the narrative at this point. With reference to what the dangers may have been, might point out that immediately before the statement from Morrae that he would not return on account of the dangers, appears the statement that they passed a long rapid and came to Mount Joliet. Whether the danger pertained to the long rapid or not, is a suggestion I make at this point.

Several authorities come up about the same time after Heward.

Hubbard, Schoolcraft, Graham and Philips.

4788 Pursuant to counsel's request, I read the opening sentence of Kennedy's journal, in the portion wherein he speaks of going to the island, meeting the traders and hiring the canoe and coming back. Reading from Hutchins' Topographical Description, page 51, July 23, 1773:

"We set out from Kaskaskias in search of a Copper mine, and on the 31st reached the Illinois river;—it is 84 miles from Kaskaskias."

August 10th. (Reading):

"From hence we went to an island, where several French traders were encamp'd but we could get no intelligence from them about the Copper mine which we

had set out in search of. At this island we hired one of the French hunters to conduct us in a canoe to our boat.

4789 August 11, we set off about three o'clock, and at night got within nine miles of our boat. We computed it to be 45 miles from the island we last departed from, to the place where we left our boat."

I desire to correct two errors in detail in my recent testimony. On transcript page 4639 (Abst., 1719) in speaking of LaSalle's movements, I said he went from the St. Joseph by way of the Kankakee on his trip down to the mouth of the Mississippi. The fact is, as I have stated it elsewhere in the record, that on that expedition he merely tarried behind Tonty for a time at St. Joseph and then followed him and came by way of the Chicago portage and spent same days here at Chicago in January, 1682.

As to whether I mean Tonty and LaSalle both went by way of the Chicago route or that Tonty went by way of the Kankakee and LaSalle by way of the Chicago route, I would

4790 say, one party started out ahead from the fort on the Miami river and came by way of Chicago; LaSalle stayed behind to make caches for his goods, I believe. Then LaSalle came on and caught up with the party at Chicago and himself spent several days here, and then all went on down together.

At transcript page 4734 (Abst., 1750), I said that St. Cosme's party reckoned on a seven league portage by way of Root and Fox rivers. I have said elsewhere, and it appears in the book, that they reckoned on a nine league portage rather than a seven league portage.

As to whether Schoolcraft at several points in his journey through the country in 1821 left the water and

4791 proceeded overland and before he reached the Illinois river at all, as appears at page 68 in the Personal Memoirs of Thirty Years' Residence with Indian Tribes, I would say it appears at p. 68 that in company with Cass, Schoolcraft left Detroit early in July and then went down the Detroit river to the site of the present city of To-

4792 ledo, and through (I do not give all the details) the Miami valley to the site of Wayne's victory of 1793 and on to Ft. Wayne, and made a horseback expedition evidently in the course of their journey, leaving the Canadians to take care of the canoe; passed on until they reached Shawneetown. Canadians were sent with the canoe around by

water to St. Louis, down the Ohio and up the Mississippi, while Cass and Schoolcraft procured a stage wagon to cross the prairies. Page 68 (reading):

"On reaching St. Louis, General Cass rode over the country to see the Missouri, while I, in a sulky, revisited the mines in Washington, and brought back a supply of its rich minerals. We proceeded in our canoe up the River Illinois to the rapids."

4793 Schoolcraft was interested in geology. It appears he visited the locality of fluor spar in Pope County, furnishing one instance of geological observation (reading, p. 68):

"We proceeded in our canoe up the River Illinois to the rapids, at what is called Fort Rock, or Starved Rock, and from thence, finding the water low, rode on horseback to Chicago, horses having been sent, for this purpose, from Chicago to meet us."

Pursuant to request of Counsel, witness then read from Schoolcraft's Travels in the Central Portions of the Mississippi Valley, page 321:

"Finding the navigation so difficult, we determined to relinquish the design of proceeding any farther by water, and to await the arrival of horses from Chicago, which had been ordered to meet us near this place on the 10th. A man was sent by land to Reddick's Deposite. He returned at a seasonable hour on the following day, having found horses in waiting. Having made the necessary arrangements for conveying baggage by land, and leaving our canoe men in charge, we mounted our horses at ten o'clock in the morning and pursued the journey with renovated spirits."

4794 With reference to Schoolcraft's interest in geology, I notice on page 68 of Personal Memoirs, that he searched for and found the fossil tree reported to lie in the rocks in the bed of the Desplaines. So it appears that he was interested in that particular geological feature.

As to where the place "Reddick's Deposite" referred to in the above passage is, I would say I do not know, I have never undertaken to verify that.

As to whether it was apparently near to Starved Rock and for the purpose of answering the witness' attention was
4795 directed to the statement in the Personal Memoirs where he said he proceeded in the canoe up the Illinois river to the rapids at what is called Fort Rock or Starved

Rock, and then follows the statement referred to. Whereupon the witness replied, that it was apparently between Starved Rock and Chicago, but that he did not see that the things that counsel called his attention to threw any further light upon it.

The WITNESS (continuing): He makes the statement that Schoolcraft's party sent a man to Reddick's Deposite to meet the horses and he returned the next day with them. It does not appear when the man was sent. It does not appear that he returned on the following day, having found the horses in waiting. If he returned on the following day, it would be a fair inference that he meant that he returned on the day after he was sent, and that it would be a fair inference from the passage that it was expected that the horses would be there at Reddick's Deposite either waiting for him or to meet him, would seem probable. He states that the horses had been ordered to meet us near this place on the 10th, and
4796 that a man was sent to Reddick's Deposite by land and he returned at a seasonable hour on the following day, having found the horses in waiting.

Whereupon, counsel for the government directed the witness to turn to the passage in either the Memoirs or Travels, in which Schoolcraft described the conditions on the Illinois River at or near the point where he left it.

Whereupon counsel read the following from the Memoirs, page 68:

4797 "We proceeded in our canoe up the River Illinois to the Rapids, at what is called Fort Rock, or Starved Rock, and from thence, finding the water low, rode on horseback to Chicago, horses having been sent, for this purpose, from Chicago, to meet us. There was not a house from Peoria to John Craft's four miles from Chicago."

The WITNESS (continuing): Another place where he speaks of conditions on the Illinois in Travels in the Central Portions of the Mississippi, page 318 (reading):

"At two o'clock we rached the mouth of the Vermillion, a fine, clear stream, entering on the left bank. This point is estimated to be equi-distant between Chicago and Fort Clark, it being ninety miles either way. The rapids commence half a mile above, which makes it evident that the Illinois is greatly diminished in size above the junction of the Vermillion. The water at once becomes shallow, and the rock, which is sandstone, pre-

sents itself first in broken masses, and soon after flooring the bed of the river. When our canoe would no longer float without rubbing against the rocks, we got out and made a short portage, the empty canoe being still guided along by men walking in the stream on each side. When we again embarked, we could, however, go but a very short distance. Another portage was necessary.

In short, we could no longer proceed in our water craft. Nothing but a series of rapids appeared above as far as we could explore. The water was scarcely eight or ten inches deep in any place, and often less than four. With great exertions, we had proceeded two or three miles above the Vermillion, and about 4 o'clock we encamped near a remarkable isolated hill, called by French voyageurs Le Rocher, and Rock Fort."

Then occurs the passage (reading):

"Finding the navigation so difficult, we determined to relinquish the design of proceeding any farther by water," and so forth.

Whereupon, the witness read pursuant to request from the same volume, page 328 (reading):

4799 "This rock is a species of recent sand stone, not essentially different from that which pervades a considerable area near the sources of the Illinois. The depth of water upon the rock was commonly little more than twelve inches."

Here occurs a footnote reference to Thomas Tousey.

Witness then read from page 332, same volume, the paragraph beginning with the figure 14 (reading):

"About ten o'clock in the morning, we reached the ford of the Desplaines. We found the river about thirty yards wide, and the depth of water two feet."

I read the footnote on page 328 (reading):

"Thomas Tousey, Esq., of Virginia, who visited this locality in the autumn of 1822, found nearly the same depth of water in the Desplaines. He writes:—'With your memoir in my hand, we rode up and down the river, till the pursuit was abandoned by the others; while my own anxiety and zeal did not yield until it was discovered. The detached pieces we found covered with twelve to about twenty inches of water, and each

of us broke from them as much as we could well bring
4800 away.' "

That is a citation from Tousey's letter printed in full in Schoolcraft's Memoirs, which has already been put into the record, and shows that this is a time when recent rains had raised the river to an uncommon height. Reading from page 180 of Schoolcraft's Personal Memoirs (reading):

> "I, with my two companions, found your fossil tree, in the Desplaines, with considerable labor and difficulty. This I anticipated, from the commonly reputed opinion of the uncommon height of the waters."

The WITNESS (continuing): It does not appear what raised the waters to an uncommon height.

My attention is directed to a Summary Narrative of an exploratory expedition to the sources of the Mississippi in 1820, by Schoolcraft, published Philadelphia, Lippincott and Grambo & Company, 1855, page 398; appendix entitled:
4801 "A memoir on the Geographical Position of a Fossil Tree in the Series of the Secondary Rocks of the Illinois." Reading from the appendix, page 396:

> "At the time of my visit (August 13, 1821), the depth of water upon the floetz rocks forming the bed of the river Desplaines would vary from one to two feet; but it was at season when these higher tributaries, and the Illinois itself, are generally at their lowest stage.
>
> Like most of the confluent rivers of the Mississippi and their tributaries, the Desplaines is subject to great fluctuations, and during its periodical floods may be estimated to carry a depth of eight or ten feet of water to the junction of the Kankakee.
>
> At those periods, the water is also rendered turbid by the quantity of alluvial matter it carries down, and a search for this organic fossil must prove unsuccessful. But during the prevalence of the summer droughts, in an atmosphere of little humidity, when the waters are drained to the lowest point of depression and acquire the greatest degree of transparency, it forms a
4802 very conspicuous trait in the geology of the stream, and no person seeking the spot can fail to be directed to it."

Schoolcraft wrote Cass September 17th, 1821, asking him for his account of the fossil tree in order that School-
4803 craft's observations might be backed up by Cass, and this extract which I proposed to counsel to read, School-

craft states is quoted from Cass' reply on that subject. Page 404 (reading):

"When we visited the spot, the water of the river was at the lowest stage; but there was no part of the tree within some inches of the surface. The rocky bed of the stream was formed round and upon it. We raised from it pieces of the rock, which were evidently in situ, and which had been formed on the tree posterior to the period of the deposit in its present situation. This rock is a species of sandstone, whose characteristic features must be well known to you."

The tree had evidently subsided into the bottom of the stream. That would throw some light on the matter of the depth of the stream at this point at this time. As to the diameter of the trees, I read from page 397 of Schoolcraft's Mississippi (reading):

4804 "It lies in the bed of the Desplaines. The action of this stream has laid bare the trunk of the tree to the extent of fifty-one feet, six inches. The part at the point where it is over-laid in the western bank is two feet six inches in diameter. Its mineralization is complete. The trunk is simple, straight, scabrous, without branches, and has the usual taper observed in the living specimen. It lies nearly at right angles to the course of the river, pointing toward the southeast, and extends about half the width of the stream. Notwithstanding the continual abrasion to which it is exposed by the volume of passing water, it has suffered little apparent diminution, and is still firmly imbedded in the rock, with the exception of two or three places whose portions of it have been disengaged and carried away; but no portion of what remains is elevated more than a few inches above the surface of the rock."

Using the passage from Cass' letter, do not see how one could draw conclusion as to the depth at the petrified tree.

4805 It seems to me it would be a pertinent matter whether the tree, being two feet six inches in diameter, lay on the bed of the stream or was sunk into the bed of the stream, whether the top of the tree was even with the bed of the stream or two foot six inches above the bed of the stream as the case might be. I see nothing in that passage throwing any light on the question. It only throws light on the

general condition of the stream as adduced from these passages. Schoolcraft says on page 398 that, "The depth of water upon the floetz rocks forming the bed of the River Desplaines, would vary from one to two feet." Read other passage from Cass because it seemed it would help make it evident that the tree itself was not lying upon the bed of the stream and still under the water. Evidently the tree had sunk into the bed of the stream. Stating the basis of
4806 my conclusion at transcript 4167 (Abst., 1571), where I say of Schoolcraft's Journal of Travels in the central portion of the Mississippi Valley, "That he found it impossible to pass along the Desplaines in a canoe." He undertook to come in a canoe up the Illinois to Chicago, or his destination being Chicago. It appears they came as far as they could in a canoe in water, after making vain efforts to come farther, and concluded they could not, they took to horses. I believe from the account the point where they abandoned their boat was on the Illinois River. I suppose it a fair deduction that they had ordered horses to meet them somewhere near that point, apparently before that time.

Concerning the point where they abandoned the Illinois river, he says:

4807 "The water was scarcely eight or ten inches deep in any place, and often less than four."

As to whether he finds there from one to two feet of water at the mouth of the Desplaines, and further up at the Ford near Chicago, he found two feet of water and a width of thirty yards, I would say, he says he found from one to two feet of water, evidently at the point where the fossil tree was situated. I believe that was at or near the mouth.

Q. And up at the Ford he found two feet of water and the stream thirty yards wide, did he not?

Objection; requires no conclusion; statement speaks for itself; question is wholly argumentative.

A. I believe that is correct. I do not seem to have the reference at this moment.

As to whether I still wish to adhere to my opinion
4808 that he "found it impossible to pass along the Desplaines in a canoe," I would say, at the time I formed that conclusion it seemed a justifiable one, and counsel has shown me nothing as yet to lead me to change it. Therefore, I shall say until counsel enlightens me, I do.

As to whether it would be impossible to navigate a canoe in a stream containing from one to two feet of water, assum-

ing that other conditions were favorable, I would say, I presume the ordinary canoe could be navigated in such a stream. In giving my opinion, I did not assume that Schoolcraft had intended to use the Desplaines. As to whether when I
4809 gave that opinion I assumed when I gave it that Schoolcraft had intended to use the Desplaines, I understand from the narrative he would have used a canoe to Chicago had it been practicable. That they undertook to use the canoe as far as they could, and when they found they were stopped, they explored further and evidently persevered for some time in their efforts to continue the canoe navigation, and gave it up as impracticable, and sent for horses, and continued on horseback. They had ordered them before evidently.

4810 I would suppose from this, that they doubtless knew something about the character of the river navigation of the Desplaines and Illinois, and since the governor of the territory was in this party and they were going on business of state they did not intend to find themselves stranded down somewhere in the middle of the state because of lack of water in the river to continue their journey. Had there been water in the river, suppose they would have continued in canoe. Lacking that they had another means of transportation provided. Do not assume that when they went from Shawneetown to St. Louis by horseback they did so because they feared there was lack of water in the Ohio and Mississippi.

In the other instance it is evident that they were taking a short cut across the hypothenuse of a triangle so to speak, and that as an additional reason, or a reason at any rate, for doing this, they were exploring the country. I do not mean to use exploring in any technical sense; they were ob-
4811 serving the country. In this instance it is apparent they used the canoe as far as they could and they persevered for some time at least in further efforts to continue in the canoe, and only then did they send for the horses. It appears from the Journal that the one geological feature Schoolcraft was interested in in this portion of the trip was the tree in the bed of the Desplaines, and certainly that could be viewed from the canoe as well as from horseback.

In going from the point where they took the horses on the Illinois to Chicago by horseback, they would not have been able, to any appreciable extent, to cut across the hypothenuse of the triangle, barring the sinuosities of the stream.

4812 (Referring to map.) Shawneetown appears on the eastern side of Illinois on the Indiana boundary, evidently, about due southeast of St. Louis. It is below the junction of the Wabash and Ohio.

*Q. Turn to the appendix and see if it is not a fact that Schoolcraft had made a very considerable study of the geology of the Desplaines Valley, or did make it on that trip?

4813 COUNSEL FOR DEFENDANT. I object to requiring the witness on the stand to examine works for the purpose of ascertaining certain things which can be done by putting in the work itself, or by the testimony of somebody familiar with the particular parts of it that apply to the question.

COUNSEL FOR GOVERNMENT. I asked the question because the witness made an answer which tended to indicate that in his mind the horseback trip from the Illinois river to Chicago could not have been prompted by any desire to explore the country off the river, and I desire to ask the witness whether he cares to adhere to that opinion after he has looked at what the book says.

A. I would say that from such examination as I am able to make of the appendix in this brief survey that I do not see any evidence of what counsel asked for in the question.

It is my understanding that Schoolcraft did make observations on this trip, being the sort of man he
4814 was, with the scholarly interest which possessed him, he would not have gone through any region such as this without observing carefully whatever came to his attention. Would not say that because going through the region he took the trouble to make this observation as was his habit, that therefore he went through the region for the sole purpose of making observations. They began their horseback journey on the 11th, at least, that is my deduction from the statement that the horses had been ordered to meet them on the 10th, and that the man returned the following day, and that they mounted their horses and pursued their journey.

4815 The first camp for the night preceded the date of the 12th. The 13th then follows, the date they were at the fossilized tree and made their investigations. The 14th, at 10 A. M. they were at the Fort of the Desplaines. It
4816 seems probable from that they started on the 12th, rather than the 11th. Will say there is no direct statement apparently as to this matter but it must be deduced from the narrative. I say from that because the account of the en-

campment or the statement of their reaching the place of the encampment, is given, and is immediately followed by a couplet or verse, and then the entry for the 13th, with the account of the doings for that day.

Q. But you called attention a moment ago to the statement that they sent for their horses on the 10th and they arrived the following day and they started out at 10 o'clock in the morning.

Objected to, because he did not say they sent for their horses on the 10th. The statement was that they were ordered to meet them on the 10th; not that they sent the man on the 10th.

The WITNESS. I called attention a moment ago to that portion of the text and undertook to draw an inference from it; and then Mr. Scott called my attention to this other portion of the text, page 323, and I stated in view of that it
4817 would appear that they started the 12th rather than the 11th. I suppose the basis of that conclusion is now sufficiently stated in the record in the course of these questions and answers.

Q. Now let us get back to my question. What do you find in Schoolcraft's account in the way of statement that it would be impossible to use the Desplaines with a canoe?

A. I find the statements on pages 318 and 319 to the effect that they were forced to discontinue the use of the canoe because of the lack of water?

Q. On what river?

A. On the Illinois river.

Q. Now, you know that is not what I asked you about, don't you?

A. I am trying to answer counsel's question, if you will give me an opportunity to complete my answer.

Q. I will, but I would like you to try to answer it; I am asking you specifically as to what he says as to the Desplaines river.

(Question read.)

4818 A. I submit that is a different question than the one counsel has just stated.

Q. That is the question I asked you about the Desplaines river.

(Question reread.)

A. Now, may I answer the question?

Q. You may.

A. I will take up my answer now then, and say that I find

on pages 318 and 319 of this volume an account of their failure to proceed any further in their journey up the Illinois to Chicago because of the lack of water. That they made efforts to continue farther, but that they came to the conclusion that this was impossible.

COUNSEL FOR GOVERNMENT. Right there, before he goes any further, I move to strike out all that answer.

COUNSEL FOR DEFENDANT. Go right on.

A. And then it appears on page 321 of the same volume, that having found the navigation so difficult they determined to relinquish the design of proceeding any further by water; that is a quotation, and therefore it is evident that they had such design to proceed further by water.

Mr. CORNEAU. Q. That second statement does not refer to the Desplaines, does it?

A. I should like to complete my answer, if counsel will permit it.

4819 Mr. CORNEAU. Just a moment, I want to interpose a motion to strike out the answer.

Mr. SCOTT. Go on and complete your answer. He can make a motion to strike out any time he pleases, but you are entitled to complete your answer.

Mr. CORNEAU. I think not. I interpose my motion to strike out at that point that reference on the ground that as we all know it does not apply to the Desplaines river.

Mr. SCOTT. Proceed, Doctor.

A. Further, on page 332 of the volume just referred to, speaking of the Desplaines he says (reading):

> "We have, however, seen its channel, as a sufficient number of points, to determine that it has several long and formidable rapids which completely intercept the navigation at this sultry season:—a remark that has been confirmed by meeting several traders on the plains, who had transported their goods and boats in carts from Chicago Creek, and who informed us, that they thought it practicable to enter the Illinois at Mount Joliet."

I submit that that is an answer to counsel's question, and my opinion as to what appears in Schoolcraft bearing upon the impossibility of using the Desplaines in a canoe at this time.

Mr. SCOTT. I would ask you in that connection to complete that quotation.

4820 Mr. CORNEAU. Just a moment, Mr. Scott. I object to counsel's coming in in preference to me on cross-exami-

nation. That passage refers to the difficulties of passing rapids at certain points, doesn't it?

A. That passage has just been put into the record, I believe.

As to whether I gather the inference from that that the rapids were dry I do not know as I would gather any inference from that unless I had more to base my inference upon; it might be true and it might not.

Q. Do you infer that it was impossible in Schoolcraft's judgment to use the Desplaines at other points than at these rapids?

A. I have not drawn any inference, I believe, but I will proceed to do so if counsel cares to have me.

Mr. SCOTT. Answer his question, "Do you?"

Mr. CORNEAU. You may.

A. I would suppose that the Ford of the Desplaines, where the water was two feet deep and the river thirty yards wide, this being a ford, evidently it was not a fall or a rapid, that a canoe might have been used at such a place. It is possible and perhaps probable that a canoe might have been used at a point near the fossil tree. I understand that this is a
4821 general summary on page 332 as to the character of the Desplaines, and I take that in connection with what seems to me is clearly evident from the narrative that they would have come on up the Desplaines in a canoe if it had been practicable, but that they came to the conclusion that it was not practicable to do so.

As to whether I assume in that answer that the only points at which they could have used the Desplaines, were at the ford and at the place near the petrified tree, I would say, I merely gave counsel the two illustrations that I had in mind of statements that occur in the narrative that seem to me to justify the assumption that the Desplaines could be used. If there are others, counsel will doubtless point them out to me.

Being asked if I wish to be understood that it is my opinion that Schoolcraft found it impossible to use the Desplaines for any considerable distance will ask counsel to indicate what he means by "any considerable distance"; that is about what distance he may have in mind. Leaving the question as it is I will interpret it to mean that you asked me if Schoolcraft found that there was any considerable dis-
4822 tance of the Desplaines which would not be used in a canoe, I would say yes in answer to the question on that interpretation.

As to whether I wish to be understood that it is my opinion that Schoolcraft found it impossible to use the Desplaines in a canoe at other points than the rapids he speaks of in the passage I read a few moments ago, I would say, I have already said I thought he might use a canoe at the ford and at the fossil tree, and have said that I put into the record the two illustrations or cases or statements which I happened to have in mind at the moment. What I meant by the statement on my direct that Schoolcraft found it impossible to pass along the Desplaines in a canoe, I undertook to make it clear, I believe, on my direct examination on this point, that in my opinion Schoolcraft and the party to which he belonged, were coming up the Illinois river to Chicago,
4823 and would have come to Chicago, or up the Desplaines at any rate in a canoe if that had been practicable. That the narrative that has been left us of the expedition makes it perfectly plain that that was not practicable. Therefore they abandoned the canoe and therefore my statement that they found it impossible to pass along the Desplaines in a canoe.

As to whether it is a fact that they never tried to use a canoe on the Desplaines at all, I would say they tried it in the sense in which I have indicated, but should not say that refutes my answer I just gave. If I tried to go to the North Pole and did not get to the North Pole, it would not obviate the fact that I tried to go there. If the Desplaines had been totally dry, as counsel would have interpreted La Salle's statement earlier in the examination, certainly they would not have put the canoes in the Desplaines and yet they might have tried to use the Desplaines and failed for that reason. It seems it is a reductio ad absurdum argument that counsel is employing.

Motion to strike out the additional statements as not responsive.

4824 The WITNESS (continuing): This opinion is based on the whole narrative in so far as it is pertinent, and upon what other facts or knowledge I happen to have in mind that have a bearing on that narrative. Being asked upon what portion of the narrative I base my opinion that Schoolcraft would have used the Desplaines had it been practicable would say that on pages 318 and 319 of Schoolcraft's Travels occurs the account of that portion of this journey where they gave up the use of the Illinois river by canoe or in a canoe, it being apparent from this narrative that they

made efforts to continue the use of the river, and that
4825 they abandoned these efforts to use the Desplaines because of lack of water. I understand they were going to Chicago to take part in an Indian treaty or something of that sort.

4826 As to whether they were going to meet their horses which had been previously ordered to meet them at Reddick's Deposite, will say, I see no statement to that effect. The statement is that, "We determined to relinquish the design of proceeding any further by water, and to await the arrival of horses from Chicago, which had been ordered to meet us near this place on the 10th." Then occurs the statement that a man was sent by land to Reddick's Deposite and returned the next day with the horses. I see no reason to object, that the horses were sent to meet them at Reddick's Deposite. I think it possible the horses had been ordered to meet them there. I do not think that is a necessary inference.

4827 Q. Have you any doubt about that in your own mind? Objection; witness answered the question.

Whereupon ensued a colloquy between counsel as to the propriety of the question.

4828 A. It seems to me the pertinent point, that having found the navigation so difficult they determined to relinquish the design of going any further by water and to await the arrival of horses from Chicago which had been ordered to meet them near this place on the 10th. Then occurs the statement that man was sent by land to Reddick's Deposite and then that he returned at a seasonable hour the next day with the horses.

I think it a fair deduction that the horses had been ordered to meet them at Reddick's Deposite. Can conceive of other circumstances which might affect the validity of that deduction. Since counsel asks me to be precise, I believe that amounts to a constitutional doubt in my mind. I have stated my opinion: I think it is probable they were sent to this place. The element of doubt approximately would be as to whether they were to meet them at Reddick's Deposite or some other place near the point of which he speaks, where he says that the horses had been ordered to meet them near this place.

4829 I should consider it a probable inference that the design which Schoolcraft says he relinquished, was that

of proceeding by water up the Desplaines. I am not quite certain as to whether or not it is a necessary one.

Q. Have you any doubt in your own mind about it.

Objection: Witness has answered; question improper.

A. I can conceive other inferences that might enter in here.

I should say it is conceivable that they had all along intended to have their horses meet them at about that place and go on up on horseback to Chicago, but it is not probable, in my opinion. The design I think they referred to there as the design which they relinquished, is according to the statement, the design of proceeding any further by water. I am reading from the text.

4830 It seems to me this document stands on the same basis as that short account from Tonty, which was put into the record the other day. Tonty was coming up the Illinois and was headed for the fort on the St. Joseph, and would doubtless have continued his journey in a canoe if that had been possible; but evidently it was not possible to continue in a canoe and so he abandoned the canoe and went on land. I think Schoolcraft and Cass in 1821 would have continued their journey in the canoe as far as practicable. Do not suppose they expected it would be practicable to cross the Chicago portage in a canoe. Have said it seems to be probable they did not even expect, or did not feel that they would be able to go up the Desplaines in a canoe. Had that been practicable, I judge they would have done so.

Q. You feel perfectly positive in that opinion, do you?

Objection: Question improper.

A. What opinion?

COUNSEL FOR COMPLAINANT. The latter part, that they would have gone up if it would have been practicable.

A. Would say that I am basing my answer on the facts and information I have at my command. Inferences are always subject to change on the addition of new information. One who draws an inference in dealing with such matters can seldom say he is perfectly positive. If counsel will produce any new evidence will be glad to consider it and revise my inference accordingly, if it shall appear to need revision.

4831 Q. I am asking you merely as to the degree of positiveness that you have in reference to this reference?

A. I believe I have answered the question.

4831 Q. You regard this inference then as more than a mere probable one and one which you affirmatively draw, is that right?

A. I think the question is already answered.

Q. I think not.

Mr. SCOTT. I think it is. I object to the question.

Mr. CORNEAU. All right; see if you can find the answer, Mr. Satterlee.

Mr. SCOTT. The question is objected to because it is an improper question, and because the witness has answered as fully as can be required of a question of that nature; and because the question itself is not an intelligible question.

The WITNESS. I will ask for a reading of the record.

Mr. SCOTT. What counsel means by an affirmative in-

4832 ference I do not know in that connection.

Mr. CORNEAU. The witness has made a distinction between inferences which are probable or possible, and those which he himself draws, if I have followed his testimony correctly. He has many times refused to state whether or not he draws an inference. He has said that such an inference would be probable or possible, without undertaking himself to say which he draws. I want to know whether or not in this case he himself draws that inference and is satisfied that that is the correct inference to be drawn; or whether he regards that merely as one of these possible or probable inferences that somebody might draw, of which he has frequently spoken.

Mr. SCOTT. I think the witness has testified that he draws that inference, in substance.

Mr. CORNEAU. If that be so it will do no harm for him to so state briefly.

Mr. SCOTT. It will do harm to state it over and over again.

Mr. CORNEAU. When questions are put to the witness his answers are so elaborate and so long, and contain so many qualifications, that it is difficult to tell what he does mean.

Mr. SCOTT. I do not think so; he is entirely within his rights. It is not competent to ask a witness upon a sub-

4833 ject like this, rigidly whether he absolutely comes to this conclusion or absolutely believes this or has no doubt about it. He is entirely within his rights in the form of answers he has given.

Mr. CORNEAU. I am not at all agreed with you on that, Mr. Scott.

Mr. CRESSY. I wish counsel for the defense had observed

that rule in the examination of the experts for the government.

Mr. SCOTT. You point out where I did not. I challenge you to point it out.

Mr. CORNEAU. Now, will you answer the question, Doctor. Unfortunately we cannot get a court ruling on the question at this time.

A. I am not quite certain what the question is. Will you read it to me?

(Record read.)

A. I understand that the inference in the question pertains to the design of Cass and Schoolcraft to come up the Illinois river route in a canoe as far as might be practicable. I draw that inference. I am not sure that I follow all of counsel's distinctions in the question as to what is—

I mean by the Illinois river route the Illinois river as continued by the Desplaines. By the Desplaines I did
4834 regard the Desplaines as a part of the Illinois river route, in making that statement a moment ago. I am not making a general statement, but applying it to this particular discussion.

As to whether I would make a general statement now, I will ask if counsel wants an account of the historical significance of that phrase, as to whether the Desplaines is regarded or has been regarded as a part of the Illinois river route at this time,

As to whether I regard it, the Desplaines, as a part of the Illinois river route when I spoke of it, I will say I did in that particular statement I made. I might not at another time.

4835 As to whether I regarded it as an impossible deduction or inference that Schoolcraft did not at any time intend to go by water beyond the point at which the horses had been ordered to meet him, I will say I have undertaken to show as clearly as I have been able to, what I regard as the reasonable deduction or inference from this narrative. I think that what counsel has pointed out would be a conceivable or possible inference.

As to whether I regard such an inference as improper, I would say, speaking as a historian, or as one who is endeavoring to do historical work in correct historical fashion, I would regard it as improper.

Q. Very well.

A. Because—

Q. Never mind your reasons; you will have an opportunity to explain on your redirect.

COUNSEL FOR DEFENDANT. Finish your answer.

COUNSEL FOR GOVERNMENT. He has answered the question; I object to his making any further answer. You may call his attention to it on redirect and have any explanation made you wish.

COUNSEL FOR DEFENDANT. You are permitted to complete your answer, Doctor.

A. I was about to continue then; because if the historian is trying to establish the truth, or what he believes to be the truth, it would be clearly improper from the historical point of view to draw a deduction which he does not think is the correct one that should be drawn.

Mr. CORNEAU. Q. Then you think that is the correct deduction, do you?

A. I believe I have sufficiently shown what I think as to the construction that should be put upon this matter.

Q. I am a little in doubt about it and I ask you now 4837 to answer the question.

A. Does counsel care to have me go over the matter again as to how I think this matter should be considered?

Q. Not in detail. You can answer that question yes or no.

A. I would not care to answer that yes or no.

Q. I ask you to do so.

A. I would ask Mr. Scott if I am required to do that.

Mr. SCOTT. Read the question.

(Previous question read.)

Mr. SCOTT. If you consider it is a question susceptible of a yes or no answer, you should answer it. If you do not, you should say so.

A. Assuming that counsel agrees as to what I have stated in the matter, what I think about the matter and what interpretation I put upon the narrative, I would answer this last question by saying that I would regard this as an improper or incorrect deduction. I suppose that will answer the question.

Mr. CORNEAU. No, sir; if you will leave out any assumption as to what I think, you may answer the question in some such way. I do not care whether you say yes or no, or say you think it is an improper deduction.

Mr. SCOTT. Will you read the answer to me?

(Answer read.)

Mr. CORNEAU. I ask you to answer the question yes or no if it is possible for you to do so.

4838 A. I ask the Commissioner to read the entire record again so far as it relates to this matter.

Mr. CORNEAU. I object to the reading of the whole record so far as it refers to this matter on the ground that it unduly delays us and has no pertinency whatever concerning this present question.

The WITNESS. I ask the Commissioner to read enough of the record to give me what pertains to this question that has just been asked.

Mr. CORNEAU. I object to the reading of the record by the Commissioner.

The WITNESS. I suppose I am entitled to know what the question is that I am expected to answer.

Mr. CORNEAU. Oh, you are entitled to have the question read.

A. That is what I am asking.

(Previous question read.)

A. I want to know what the deduction is. If you will read that part of the record, please, so as to make it clear how that was stated.

(Record read.)

Mr. SCOTT. I object to that question because the witness has already answered.

Mr. CORNEAU. If you merely wanted to have read

4839 what has occurred in the last few minutes I am perfectly willing to have all that read to you. I understood your request to be all the testimony on the subject of Schoolcraft this morning.

A. I have found out what I want to know, so I will not need to take advantage of counsel's offer. Now, if I understand the matter, I will undertake to answer the question. I would not consider that an impossible deduction or inference.

Q. Are you through with your answer?

A. If I have answered the question; I believe that answers the question.

Q. That answered the question. Now, the other question was, did you regard that inference or deduction as improper?

Mr. SCOTT. Objected to because he has answered that specifically.

A. I have answered that question.

Mr. CORNEAU. I thought he wanted to go over the whole

thing again. Will you just turn back and read the question which was not answered?

(Question read as follows: "Then you think that that is the incorrect deduction, do you?)

Mr Scott. That is objected to because that has been squarely answered.

Mr. Corneau. Not that question.

Mr. Scott. Yes, when he answered the question as to
4840 improper, he said in effect that it would be incorrect, and therefore that it would be improper.

Mr. Corneau. I put a question to him and then I asked him to answer that question yes or no. You then directed him to answer yes or no if he could, or in substance. He then made another answer that I do not apprehend answers my question, and then I put this question to him.

Mr. Scott. Will you read the answer where he said that as a historian, or speaking as a historian, and so on.

(Answer read as follows: "Speaking as a historian or as one who is endeavoring to do historical work in a correct historical fashion, I would regard it as improper.")

Mr. Scott. It seems to me he has answered.

Mr. Corneau. I do not think so.

A. In the light of such sources of information as I have and such study as I have made of the whole narrative, I think it would be an incorrect deduction.

The statements in Schoolcraft about the depth of water Floetz rocks, the water at the ford, and that there were several formidable rapids, and so on, which I have heretofore introduced are the only ones I have in mind about the conditions on the Desplaines. Am not prepared to say those are the only specific statements. There may be others. When I said at transcript 4168 (Abst., 1571), that Schoolcraft came to the conclusion that the Desplaines was not navigable at that particular season of the year, am not certain that I made the distinction at that time that he came to the conclusion that the Desplaines could not be used for boats for any distance as distinguished from the conclusion that there were obstructions at certain points. Aside from the narrative generally, this statement is based upon what appears on page 332 of Schoolcraft's Travels in the Central Portion of the Mississippi Valley, and from that page it appears that he had seen the river enough in the course of this horseback journey to conclude that these long

formidable rapids completely intercepted the navigation
4842 at this season; that he had met traders and talked with them who were transporting their goods in boats from the Chicago creek, and they gave him the information that they thought it would be practicable to enter the Illinois at Mount Joliet. The book says, Illinois, I suppose we would call that the Desplaines. He calls it the Illinois at that particular point. He goes on to point out that while that would make a portage of about 30 miles, it had been perceived that they in their own experience began it, that is to say the portage, far below this point, Mount Joliet. Then calls attention to the error of those who supposed that a canal of only eight or ten miles would be necessary. I do not understand in looking at this matter now (I do not remember whether I had that particular distinction in mind when I made the statement in the record) that this necessarily excludes the idea that a canoe could not use the Desplaines at all. I understand from this passage in a general way that Schoolcraft means to convey the idea that the Desplaines is not a practicable route for navigation.

That was the Cass expedition. It appears Schoolcraft came down the lake to Chicago in 1820. Was returning from the exploratory expedition to the sources of the Mississippi.

He was with Cass at that time. He was entertained by
4844 Kinzie to some extent, whether that means the whole period of his stay or not.

As to whether Kinzie was throughly familiar with conditions around Chicago and had pretty good opportunities, the best sort of opportunities to know about the Desplaines river and its use by traders and others, I would say I suppose that Kinzie ought to have known about those things.

As to whether Schoolcraft was Indian agent at Sault Ste. Marie, from 1822 to 1831, I am not prepared to answer.
4845 If counsel says he was I would not question it. He was Indian agent during that period. I do not recall his location with certainty. I suppose that he may have been Indian agent there, during this period.

Whereupon the witness' attention was directed to Senate Documents, First Session, 22nd Congress, Volume 2, pages 41 and 42. Witness informed that if he cared to verify it he could find some information in that volume. Whereupon, the witness replied: Unless something should develop to require me to do so, I do not care to verify it.

As to whether Sault Ste. Marie was right on the Mackinaw

Route, right at Mackinaw, I would say I think Sault Ste. Marie is at the opening of Lake Superior. Sault Ste. Marie is as stated by counsel a moment ago, on the St. Mary's river near the eastern end of the Northern Peninsula of Michigan. The water connection between Lake Superior and
4846 Lake Huron. I presume Schoolcraft was at Mackinaw frequently. He was there sometime.

As to whether he would have had opportunity there to speak to traders who were trading in the Illinois country and familiar with it from 1822 to 1831, I would say that without verifying the matter I would suppose that that may have been the case. I believe that Schoolcraft went with Governor Cass to the Fox river in 1827 and stayed there and that Cass rejoined him after making his trip up the Desplaines. I would say that I judge from what I see in the personal memoirs, that Schoolcraft went to Mackinaw
4847 in 1833, and I would observe in that connection that I understand the heyday of Mackinac as a fur trading center, had passed at that time. However, I think counsel is doubtless right in supposing that Schoolcraft had the means of familiarizing himself with the trade and travel of that region. If counsel says that he met and talked with Jean Baptiste Perrault, I have no reason to question it. I note here that Schoolcraft had manuscript of Jean Baptiste Perrault in his possession.

COUNSEL FOR COMPLAINANT. At page 352 of work entitled: "Information Respecting the History, Condition and Prospects of the Indian Tribes of the United States: Collected and prepared under the direction of the Bureau of Indian Affairs, per Act of Congress of March 3rd, 1847, By Henry R. Schoolcraft, L.L.D.," is a reference to Schoolcraft meeting Perrault.

4848 Q. In your conclusions with regard to Schoolcraft, which begin at page 4160 (Abst., 1568) in the record and run over to I think page 4170 (Abst., 1568-1572), that you made any statement as to whether or not you as a historian accept these statements of Schoolcraft read into the record at page 330 (Abst., 154), as correct, namely, "The principal points at which the waters of the Mississippi river communicate by interlocking rivers and portages, with the lakes, are the following, proceeding from south to north, namely:

"1. By the Illinois and Chicago Creek, with Lake Michigan." * * * "The routes by the Illinois and the

Wisconsin, were first laid open by French enterprise, and have been used for canoes and flat-bottomed boats in their natural state, and without any pratical improvement which as yet, facilitates the communication, about a hundred and sixty years."

Q. Will you state whether or not as a historian you accept that statement as correct?

A. See no particular reason to reject it at this moment. In that connection one would naturally subject the ac-
4849 count to such criticism or interpretation as might be called for in making use of it. I have studied that to prepare myself to testify. Undertook to examine it as carefully as I might; in a general way; I have other duties also. Subject to the answer I gave a moment ago, I am quite willing to accept it. Do not care to investigate it any further.

Q. In other words, so far as your information and studies now go you accept that statement as correct, do you not?

A. Subject to the explanation I gave a moment ago, and which the Commissioner has just read, would accept the statement or statements. It seems, I am using plain English. Subject to what I said there, I accept them. If counsel wants me to explain that, I am quite willing and ready to. To illustrate: A statement is frequently made that the sun rises in the east. If counsel would ask me whether I accept that statement or reject it, I would say ordinarily I accept it.

4851 If counsel wanted me to go into detail, I probably would go into a further interpretation of it and add certain details as to the way in which I accepted that statement.

Just so as to the passage from Schoolcraft under discussion. He says in effect that the waters of the Mississippi communicate with the lakes by interlocking rivers and portages, and among other places, by the Illinois and Chicago Creek. Calling attention to the fact that the term portages is used here and that there is no indication as to the length of the portage, that is so far as his particular statement goes, it may be a portage of any length, I have no objection to accepting that statement that Schoolcraft has made.

If counsel wants to know just how I accept it, I would go on and point out in some such fashion as Graham and Philips have done, that at times no portage at all is required; at other times it is a portage of some length and at

other times a portage of greater length, extending at times as far as a point somewhere on the Illinois.

4852 As to the routes by the Illinois and Wisconsin, the statement is that they were laid open first by French enterprise. I have no objection to make as to that and consider it correct. That they have been used by canoes and flat bottomed boats in their natural state and without any improvement for about 160 years. My interpretation there would be that they did not use the canoes and flat bottom boats on the portages, but that they used the water route in those days. So with that explanation and calling attention to the variation in the length of the portages from season to season and from time to time, I am perfectly willing to accept the statement.

4853 Looking at Graham and Philips' report, I note that having discussed the matter of a canal connecting these bodies of water, he goes on to point out two difficulties, assuming that the canal were opened, and the second of these two difficulties is that during half the year the Plein does not contain water enough to float a boat. Suppose he did not mean to include the winter season in that half of the year for the reason that the winter season is not ordinarily a season of navigation; and for the further reason that much of the time if not all the time, perhaps it would not be true all of the time, the water in the canal would be frozen up. I believe I said in this connection, I would add something like three months to those six months. Did not mean to indicate any precise number of days I would add.

4854 That is my only reason for adding the winter months. My conclusion is not based on affirmative statements in Graham and Philips beyond the statements mentioned.

Q. At transcript page 3770 (Abst., 1429) you made these statements: As to the report itself they point out that the Desplaines river in high water is from four to six feet deep and in places a mile wide; and in low water is dry or reduced to a gutter. This statement will be found at transcript page 255 (Abst., 114). Turning to that place, please point out where it states that the Desplaines river in high water is from four to six feet deep. In other words, are not Graham and Philips there talking about the arm of the Desplaines river extending from the Chicago river, which arm of the Desplaines is sometimes called the Chicago river?

A. I so understand. If an arm of the Plein is the Des-

plaines they are; if it is not they are not. It seems to be the sense of the passage that the main river was running approximately north and south, and that then there was
4855 another arm or creek or something running into it from the east from a point over somewhere near the south branch of the Chicago river, which is what they are speaking of in that passage. I believe that is what they speak of as being dry or reduced to a gutter at times. As to whether they are here talking of the Desplaines river proper, will say, they are talking specifically about the arm of the Plein. So far as that statement, of Graham and Philips, transcript 3770 (Abst., 1429) is concerned it seems to be applied specifically to
4856 this so-called arm of the Plein. Of course there is the other statement that during half of the year the Plein does not have water enough to float a boat.

As to whether wherever I may have said that in Graham and Phillips it was said that the Desplaines was dry or a gutter at certain seasons, I want it modified in this way, I would say that, wherever I based the statement on this part of the report; wherever I based it on the other statement that half of the year it had not water enough to float a boat, I do not think that any modification would be called for.

Q. I am talking about the statement that the Desplaines was dry or a gutter. You do not base that on anything but that passage, do you?

A. I have not now in mind all the times or places in the record where I have made that statement. I say wherever I based that statement on this part of the report it would be subject to the modification indicated.

Q. We have no way of telling what you were basing the statement on, Mr. Quaife. Do you want us to understand that you would say, speaking of the Desplaines river proper as distinguished from this arm, that it was at any time dry or reduced to a gutter.

A. Taking the report as a whole, or just this part of the report which you have directed my attention to?

Q. Taking the report as a whole.

A. I should think that if the Desplaines did not contain water enough to float a boat it could hardly be called a
4857 raging torrent during that half year. I would not, however, on the strength of that statement alone say that it was dry or a gutter. Do not recall now the statements counsel refers to; would not care to answer as to them without having them before me. Wherever I base the statement

on this part of the report, it would be subject to such modification, properly. Counsel says that he understands me to now say that I would not, basing my statement on any other part of the report, assert that the Desplaines was dry or a gutter; that is, the Desplaines river as distinguished from the arm we speak of, and asks if I would not modify that statement wherever I make it based on Graham and Philips' report. In reply would say I cannot make it any clearer than I have already done. Here are two passages that go to
4858 indicate what Graham and Philips thought of the nature of the Desplaines. I have said two or three times that in so far as the first one was concerned it was subject to the modification indicated. If I were using the words dry or reduced to a gutter, I suppose every time I used them it has been with reference to this first part of the passage. I would modify it certainly in each instance. I did not construe the passage that for half a year the Desplaines did not contain water enough to float a boat as meaning that nowhere along the Desplaines would it float a boat. I would apply that to shallow places. I do not know whether I would to rapids. I presume the chief difficulty is because of lack of water at the rapids.

4859 There are various accounts of the Desplaines which go to indicate that its condition was such that it was not capable of navigation. For example, La Salle, Tonty, Charlevoix and so on.

Q. Well, we have just been over all of them. Now, I think you are getting away from the question altogether, if you will pardon me the interruption.

COUNSEL FOR DEFENDANT. I do not think so. You asked him if he found anything to indicate—

COUNSEL FOR GOVERNMENT. No, I asked him if he found any specific statements of any difficulties encountered except those found at rapids. We do not want to go over all this again. If he has any specific statement he is at liberty to produce it, of course.

A. It seems to me I have produced specific statements of the difficulties encountered at the rapids in referring to what La Salle and Charlevoix said about the river and in referring if I had been permitted to do to, to this report of Graham and Philips, that at times a portage of fifty
4860 miles was in the habit of being made. In referring to the statement in Schoolcraft that traders were making the portage to Mount Joliet, which I understand is some-

thing like thirty miles, I have nothing further than such statements as those in mind.

I believe I have employed an argument that we are to determine the exact nature of these difficulties which were encountered in using the river by reference to the accounts of those who had used it or who had attempted unsuccessfully to use it.

Being asked to turn to the accounts which specifically describe these difficulties to see if I can find any mention except the rapids, except such general statements, perhaps as La Salle's or Graham and Philip's, I call attention to the manuscript account of Hubbard's first year in the West, which I have already put into the record.

4861 He uses the word ripples as I have it in my notes. I understand that a ripple is either a plame where there is not water enough to float a boat; or had some such significance. Sometimes it is used as a synonym of rapid, I believe. Do not understand it was necessarily so used in this case. Will have to refer to dictionary to answer counsel any further. The first definition given here which seems to apply is:

> "To assume or wear a ruffled surface, as water when agitated by a gentle wind or by running over a stony bottom; be covered with small waves or undulations."

Having that definition in mind, my understanding is that this term as it was sometimes used, was used in the

4862 sense that I have indicated a moment ago. It might be a snyonym for rapids; it might be used to indicate that they reached a place where there was not sufficient water to float a boat. It appears from Hubbard's account that ripples occurred very frequently. Do not know that I would add anything to the statement itself in that manuscript as to that. It reads:

> "The water of which, being low, floated the boats but short distances before it became necessary to lighten them, often taking all the goods out and passing the boats on rollers over the ripples to floating water."

4863 I would assume that it may have been used in the sense of passing over rocks or obstructions. It may have also been used in the other sense that I have indicated. Without further investigation as to the way in which the traders and voyagers in this period used the term I think I could throw no further light upon it.

4864 I wish to call attention to an error which appears on transcript 4650 (Abst., 1723) which requires correction. In answer to the question as to what sort of vessel the word barque refers to on that page, the passage under discussion is the report which Dablon made, and therefore the answer does not fit the question as it appears in the record. It can be made to do so, and this is how I would have it appear; that evidently Dablon had in mind boats capable of navigating the lakes.

4865 Without undertaking to verify what I have already stated or may have stated, will say the document deals with the difficulties of the carrying on of the trade between Canada and Illinois or the Mississippi, by way of the lakes; it appears from the second of the specific difficulties that are listed that among other establishments which would be necessary if this route is to be employed in the conduct of this trade, would be one at the lower part of the lake of the Illinois where navigation ends at a place named Checagou. To lock up there the goods they have brought in the barges and have them transported by canoes two leagues from there. Said canoes only can navigate as far as the village of the Illinois for a space of forty leagues, contrary to what Joliet had said, that there was only a quarter of a league of interruption of navigation. And further, the third point:

> "One of them (I understand this also means an establishment) is also needed among the Illinois where barges can navigate."

I suppose La Salle had in mind here that the boats that navigate the lake cannot navigate the Desplaines, for he speaks of an establishment where the goods brought by

4866 way of the lake can be locked up and then transported to the Desplaines. He does not use the word Desplaines; further that for a space of forty leagues only canoes can be used; and then further down a similar establishment is needed among the Illinois where barges can navigate, evidently implying that they cannot navigate above this point or to this point.

He says at this point, to continue the reading where I left off:

> "Contrary to what Joliet had said, that there was only a quarter of a league of interruption of navigation."

At transcript pages 710-711 (Abst., 294), Alvord's translation is as follows:

> "And at this time, should one make in summer a little canal of a quarter of a league, says Joliet, from the lake to the basin which leads to the Illinois River, ships could enter into Chicago and descend to the sea. That might perhaps happen in the spring-time, but not in the summer, because there is no water."

The word "ship" is Alvord's translation of the word "barques."

Whereupon, counsel for complainant read and called the attention of the witness to the following extracts to assist in determining what Hubbard meant by ripples in the river. A passage from Schoolcraft's Travels in the Central Portions of the Mississippi Valley, page 333:

> "We are indebted to a gentleman of correct observation, who has explored the route with particular reference to the subject of a canal, for the following information respecting these parts of the bed of the Illinois and Desplaines, which we have not personally examined. The computed distance from the ford on the Desplaines to its union with the Kankakee, is about forty-
4868 five miles. Fifteen miles of this distance consists of Lake Joliet, and the remainder is almost equally divided between ripples and still waters. The next obstruction occurs at the Kickapoo rapids, which have a fall of perhaps six feet, in the distance of a mile and a quarter. But these yield in importance to the Rock Fort rapids, which are commonly computed to be twenty-four miles long."

I do not read this as a correct statement in regard to the character of the Desplaines but merely in reference to the meaning of the word ripples.

> "The total fall of the river in this distance cannot be less than thirty-five or forty feet. The Illinois, in passing these rapids, is spread over a wide surface, which reduces the depth to a few inches, and hence it has been suggested, that by cutting a channel in the rocks so as to concentrate the volume, a good and sufficient navigation would be afforded for boats of eight or ten tons burden. By a similar labour, the whole series of rapids could be improved, and at perhaps a comparatively small expense."

Major Long's report:

"The river (speaking of the Desplaines, as I understand), throughout the above mentioned distance, has 4 or 5 short rapids or ripples that make their appearance only in times of low water. In every other part, it has the appearance of being a chain of stagnant pools and small lakes, affording a sufficient depth of water for boats of moderate draft."

Letter to Honorable John H. Woodruff, dated June 7, 1881, signed G. S. Hubbard, appearing in the volume entitled: "Autograph Letters, Vol. 71 of the Chicago Historical Society Collection of Works." (Reading):

"You ask me for my recollection of Mount Joliett, &c. I first saw that place in October, 1818. I was then a boy sixteen years old under the command of Antoine Deschamps, an old gray haired educated man, in charge of the American Fur Co.'s trading post on the Illinois river. His command was known as the Illinois Brigade comprised of twelve Mackinaw boats with which we coasted the eastern shore of Lake Michigan"—there is an interlineation above that "from Mackinaw," but just where it is intended to be inserted I am not clear.

"Loaded with merchandise for the Indian trade on the Illinois river. Our boats were crossed empty from the head of the south branch of the Chicago river to the Desplaines, through what was then known as 'Mud
4870 Lake.' The goods transported across the 'portage' on our men's backs, reloaded at the Desplaines, which we descended to our destined trading post locations, the first on the Illinois river about 1 mile above the present city of Hennepin.

Next is Westby City, and on down 40 to 60 miles apart to its mouth rather 20 to 30 miles above. This embraced Mr. Deschamps' jurisdiction extending east to Wabash and west Mississippi river. The water in the DesPlane was low always in the fall, many places mere ripples. Our boats had frequently to be wholly or partially unloaded and goods backed down to a point of sufficient water to again float loaded, a short distance, and then repeated. It was a slow and fatiguing work, performed willingly and cheerfully by our Canadian voyagers, living principally on hulled corn soup. No other nation in the world better suited to such business. There was great rejoicing when we

reached the foot of the ripple below your city, having lake Joliet in view, for from there, the distances between shallow and deep water were greatly lessened."

4871 The WITNESS (continuing): I suppose from the general appearance of the letter it is in the handwriting of G. S. Hubbard. Have used the Hubbard manuscript. Do not pretend to be able to identify his handwriting with precision. I see no reason to reject the proposition that this is in Hubbard's hand. I judge from certain of these

4872 passages that the word "ripple" was sometimes used as a synonym for "rapid." Am not certain it was necessarily so used. The Century Dictionary says: This is a verb.

"To assume or wear a ruffled surface as water when agitated by a gentle wind or by running over a stony bottom; be covered with small waves or undulations.

2. To make a sound as of water running over a rough bottom; as, laughter rippling pleasantly."

Next the transitive verb.

"To fret or agitate lightly, as the surface of water; form in small waves or undulations; curl.

Then the noun, ripple, the first meaning given being

"The light fretting or ruffling of the surface of water; a little curling wave; an undulation.

2. A sound like that of water running over a stony bottom; as, a ripple of laughter."

Q. I do not think there is any occasion to go any further with the dictionary, Mr. Quaife. My question was merely as to whether or not those passages I read gave you any aid. We can all refer to the dictionary.

COUNSEL FOR DEFENDANT. It will be only the question of whether we do it here or whether we do it on the redirect.

COUNSEL FOR GOVERNMENT. That is the only question, but I think it is unnecessary to encumber the record with a lot of extracts from the dictionary at this point.

A. I will say for the record the only reason I referred to the dictionary is this: That I was giving all the meanings under "ripple," and I found a reference to the word

4873 "wave," and lest I be convicted later on of inconsistency I preferred to look up that reference and put in whatever might occur there.

4874 The basis of my objection to assenting to the proposition that a ripple is necessarily a rapid is this: that I have in mind that I have seen in the course of my reading

a different use of the word, such as I have indicated. Have not in mind the reference and cannot turn to it. Am under the impression that the word was sometimes used in the other sense.

4875 It would appear that from these passages that it was certainly used in the sense of rapid at times; to that I have no objection. Whether it was always used in that sense or not, I refrain from affirming. I am not sceptical about the proposition that during the period Hubbard made a number of such trips between 1818 and 1825, as are indicated in his Life.

4876 I might have some doubt as to the dates. Hubbard might and doubtless did get mixed on those dates as the man who gave us the work which is in part biographical and part autobiographical, may likewise be and doubtless was at times in error.

Q. What other matters do you have in mind as being details? His general description of his trips, incidents that occurred along them and so on?

A. That is intangible and indefinite. What I have in 4877 mind is that this volume which purports to be a sketch of Hubbard's life is partly autobiographical according to the preface, partly compiled from the narrations which Hubbard made, and from letters and other documents written during the years of which they treat. The man who prepared this volume was Henry Hamilton, who in his general prefatory note does not indicate any further than the passage just referred to as to what those narrations might be.

I showed in my discussion of the account of the Cass trip that it is probable that general historical works were relied upon by the compiler of that account, and therefore, he is as likely to error in his biographical account as would be the case in an account which another historian might make up of that trip. Assuming that the work is purely autobiographical, which is not the case, it is written something like half a century after the events which it describes. Counsel can satisfy himself by an examination of this manuscript that such things as dates, at least, and possibly other things, have been 4878 altered, either by Hubbard or by someone else. Perhaps only to the extent of a grammatical change; the dates have been altered. To answer further would have to look into the manuscript. In the discussion of the portion of the book dealing with the trip of Cass in the Winnebago outbreak, I showed a good many details of one sort or another, were

inaccurate. Have not subjected any other portion of the book to a careful examination as I did that particular portion, and do not know whether such examination would produce an equal number or proportionate number of errors or not.

4879 The statement in regard to the origin of the name "Isle la Cache" is evidently in error. In view of all those things, I say the book is one, in so far as details are concerned, that should be used with caution and is properly subject to verification. I say referring especially to the manuscript labeled "Recollections of the First Year of His Life as an Indian Trader," I have an idea of its history. It is not, I believe, susceptible of proof.

4880 Stating from memory as to who wrote Life of Hubbard, Hamilton states that this manuscript is in Gurdon Hubbard's handwriting, and details some incidents of his early life. Do not know who transmitted the document to the Historical Society. Understand the Society has received the manuscript from the estate of Mrs. Mary Ann Hubbard, and has recently received letters from Miss Marsh, who was the personal companion of Hubbard.

4881 Do not know anything about a letter of transmittal. My statement is based on what Mr. Hamilton has written. It was not in a letter of transmittal. It was in a letter of June 20, 1911. Hamilton does not know for what particular occasion the manuscript was written. States Hubbard was called upon to deliver an address, and this is evidently one of them. I turned to the autograph letter files of the Historical Society and found there, from two letters which appear bearing date about December, 1881, or 1880, references to what apparently was this particular address contained in this manuscript. A reference to the record of the Society reveals no further light. Suppose an address was delivered about December 1, 1881, or 1880.

4882 The date was 1880. Having the letters before me just referred to, the first was written by A. D. Hager, Secretary of the Chicago Historical Society on December 2, 1880, to G. S. Hubbard (reading):

> "I wish to congratulate and thank you for giving your first years experience in the West and to ask a few favors:
>
> 1st. Will you let this Society have the manuscript of that lecture to preserve? And secondly will you give this society your Second or some subsequent years experience in a paper at some meeting this winter—even

within this month, notwithstanding we have two lectures already arranged for this month—Washburne on the 14th & Van Schaak on the 21st."

The other letter bears the same date, is written by Isaac N. Arnold, President of the Chicago Historical Society (reading):

"Dear Mr. Hubbard:

I was so lame last night I could not go & hear you. I was very sorry.

Cant you give us a paper on your reminiscenses some time this winter. I refer to the His. Society?

I hope you can & will.

Very truly yours,

(Signed) ISAAC N. ARNOLD."

The manuscript is labeled evidently by an attendant of the Chicago Historical Society, "Manuscript of Gurdon S. Hubbard's Recollection of the First Year of his Life as an Indian Trader."

In another notation, "Box 4" and a reading of the manuscript shows that it is, as the title indicates, a manuscript dealing with that first year of Hubbard's life in the west. Hence my conclusions as to the probable date of the delivery of the address or discourse.

Referring to my opinion as to whether or not the most active trade carried on on the Desplaines river falls between the period 1773 and 1825, or thereabouts, will say without assuming any responsibility as to relevancy of certain of the sources to which my attention was called in asking the question, I think there was more trade and travel in the Illinois country and in the northwest generally in the years from 1783 to 1825 than in any equal prior period. A large portion of the sources counsel has cited in the question were only as to this general condition of trade and travel in this region, having no direct bearing on the use of the Desplaines river, further than pertains to the general inference that may be drawn that there were more travelers who has occasion to pass along the Illinois river route between the Mississippi and Lake Michigan, or vice versa, would probably make such use of the Desplaines as was feasible and desirable in view of the particular circumstances in any specific case.

4885 By going through the table of contents of the authorities referred to by the Government, could enumerate those authorities with which I was familiar before I worked on this case. I understand that one may say he is familiar

with a work if he knows something in a general way as to its standing, contents and reputation. Possibly, further than that, he ought to have at least seen the work, although that would not necessarily follow—it probably would usually follow, and had made some use of it.

I have seen and used, as I recall, Beck's Gazetteer. In a general way, I suppose I am familiar with Father Allouez, and knew in general of Chittenden's American Fur Trade. Have not made any particular use myself of the volume. Morse's American Gazetteer and other publications of his, or many of them, I had used or referred to. A Gazetteer obviously one would not read it through at any one time. Professor Ferrand's book in the American National Series, I made considerable use of in connection with the general series.

4887 American State Papers, Miscellaneous, being a compilation of hundreds or thousands of documents, can say as anyone could and only in that way probably, that I am familiar with the general series and have made use of it. Andreas Early History of Chicago I have used.

4888 As to Bains, Alexander Henry the Elder, I did not know, this particular volume. Knew in a general way of Alexander Henry and the particular part of his career in the west most frequently referred to. Have used this particular volume of the Northern Indiana Historical Society. Have used Beck's Gazetter and Blanchard's History of Illinois. Many of these authorities which the Government has used occur merely as individual documents in larger collections. In a general way, have made considerable use of the Board of Trade Report in the Michigan Pioneer and Historical Collections and Wisconsin Historical Society Collections; to some extent of the Haldimand Collection. The Cahokia records constitute a part of the Illinois

4889 Historical Collection; have used those. Winsor, Narrative and Critical History; Schoolcraft I have referred to at various times. Am not sure I have referred to everyone of the different volumes of Schoolcraft that have now been used. In fact, I think not. Am familiar with his works in general and with the standing of Doctor Shea and his work. Have not known the Catholic Church in Colonial Days at first hand. Charlevoix's standing—one may be familiar with these things, it seems to me, from the use of such works as Winsor's Narrative and Critical History and Shea's Republications, and so forth. I

prefer to use an English work rather than a French work when it is possible.

Hurlbut's Antiquities. Believe I have seen Ebenezer Child's document, occurring in the Wisconsin Historical Society Collections. Am familiar with those in a general way.

4890 Hennepin's New Discovery. The document or lecture on the location of the Guardian Angel Mission. Am unable to make a statement about Major Long's report, whether I was already cognizant of that or not.

Father Dablon. Believe I had not used Darby's Tour from New York to Detroit. Knew of the man.

Never made use of Margry in the original until I came in this case. Many of these documents in Margry one may first familiarize himself with in the general study of American history.

Know something about the character, standing and career of Robert Dickson. Do not recall ever having seen Drown's Peoria. Am unable to say whether I have seen references to it. Believe I have never used DuPratz History of Louisiana. Knew of its existence and the general field which it treated. Have used McCulloch's Early Day in Chicago and Peoria, being one of the C. H. S. Collections. Am certain I had seen and turned through Shea's Early Voyages. Do not recall whether I read St. Cosme's account at that time or

4891 not. I may claim to be generally familiar with Thwaites' Early Western Travels. Do not pretend to have read them all, as probably United States' expert would admit he had not done.

(Motion to strike out last statement.)

Governor Edwards' Work and Career I had become familiar with to some extent through the use of the Edwards Papers and History of Edwards' Illinois and Life, contained in the Chicago Historical Society Collections.

My attention has been called to Estwick Evans, and I have spoken of Professor Farrand's book in the American Nation Series. Have made considerable use of Fergus' works in the Fergus Historical Series. As to Flint, can speak only generally. Do not recall what use I have made of this particular volume; was cognizant in a general way of Flint's work and place in American historical literature.

4892 So with Ford's History of Illinois, and of the reports of Frontenac; and Furman's Letter which was published in Andreas. Do not recall having seen Gallatin's Report to the United States Senate, but that is one of the various docu-

ments in the American State Papers, concerning which have already spoken. Have studied Treaty of Greenville in various ways; cannot say whether I had ever read the original treaty through from beginning to end, before I came into this case. Think I had not at the present moment read it through.

I was cognizant with Hager in Andreas. Believe I had referred to it, although am not certain. Seem to have been familiar with Hall's Notes on the Western States.

I will say at this point that if counsel should ask me now the contents of each of these volumes, would not undertake to tell him. If I claimed to be familiar with a book in a general way, I am speaking without reference to just what it may contain.

4893 Had used Heward's Journal. Hinsdale's Old Northwest and Historical Magazines, the latter a publication had not used all parts of it. Without seeing Blanchard's History of Illinois, could say nothing about it. Suppose this is Rufus Blanchard's History. Have disposed of Flint's History of the Mississippi Valley in my general statement with reference to Flint. I have used the lectures that Woodruff delivered. Am not certain, but I think I had not used this particular history of Will County. Had used and read Hoffman's Winter in the West to considerable extent. Had read through Hubbard's Life by Hamilton.

4894 All I can say about Hutchins' Topographical Description is that the character of the man was not especially new to me, though I believe had not in mind any considerable detail about him when I came into the case. Had used Moses' History of Illinois. Cannot make a statement about Imlay, whether I had actually used his book or not. My impression is I had not at the time, although I knew his place approximately in American history. Do not know who Eliza P. Jones may have been. Recall nothing about him. Would put Joutel about as I have some others, that I probably have a general although probably not a detailed knowledge as to him. Could have located him in connection with La Salle, no doubt, and perhaps gone further than that. Had seen and looked through Keating's Account of the Long Expedition of 1823.

4895 Think had never seen Kinzie's letter of July 15, 1815. In a general way, was familiar with Lahontan, and certainly with Captain Langlade. Shall not attempt to answer as to the various references that occur here to Langlade.

Had never seen the Ayer Manuscript, the letters with reference to Langlade. Knew something about La Salle and the

various works of Parkman and doubtless others who treat of La Salle.

LaSource would class with what I have said about St. Cosme. In a general way knew of or about these accounts of Marquette found in Jesuit Relations, from such works as Parkman, Winsor and other works of that character. Had used Jesuit Relations to some extent with reference to Marquette. Am unable to make a positive statement at this time.

Membre's Narrative occurred in Shea, so what I said generally about Shea, will doubtless apply to Membre.

Do not think ever had used Navigator in the original. However, in one volume of Hurlbert's Series the whole subject of the Ohio River Navigation and History is treated of. Perhaps it would be fair to say that in that way am familiar with the Navigator, or the thing at any rate with which it deals, to some extent.

I know the place in the literature of American history of the New York Colonial Documents, being a mere collection of documents obviously had never read any considerable number of them. Have spoken in a general way of Schoolcraft's works. Note that Perrault's Narrative occurred in one of Schoolcraft's volumes. Recall no previous familiarity with that particular document. Can make no statement as to Peter Pond's Journal; may or may not have seen it. It occurs in the Wisconsin Historical Society Collections, and so with Perrot's Memoirs in the same series, also Pierre Paquette. As to the various citations of the Wisconsin Historical Society Collections, I turned through many of those volumes, and used many of the documents in them.

4897 Have certainly used some of these, but probably had not used others before I came into this case. Never heard of Gershom Flagg until complainant's witness was instrumental in calling him to my attention. Here are various reports of committees to Congress. Obviously would not be expected to make any general statements as to these committee reports. The same applies to the various Senate documents.

I knew of Smith's History of Wisconsin. Believe have had it in my hands. Have not in mind any particular knowledge of the volume further than that. Spoke of Joutel's Journal. Had never used Stiles' Edition. Do not know whether I was aware of its existence or not. Had used for purposes of reference, the St. Clair paper by William Henry Smith.

4898 In a general way, as I said in speaking of La Salle, was familiar with Tonty's career in America. I note a reference to Faulkner's Discovery of the Mississippi in this connection, and do not think I was familiar with that, or that I am at the present time. The volume of Wheeler on the Trail of Lewis and Clark, was not familiar with at the time, though I was familiar with the place in American history of Lewis and Clark, and have frequently used books that deal with the subject. Recall no particular reference to this of Wheeler, however. Turner's Essay on the character and Influence of the Indian Trade in Wisconsin, think had not used this particular essay occurring in the Johns Hopkins Series. Have used that series at various times in course of my study and work. Am not familiar with Warden's United States.

That completes my answer so far as I can base it on the perusal of the index.

4899 Beck wrote a gazetteer of Illinois, published about 1823; believe he was in western country at and after the time when gazetteer was written or published. Believe he was down somewhere in the lower part of the State of Illinois. Would have to verify that to be certain. Do not recall how long he had been in that part of the country.

COUNSEL FOR COMPLAINANT (reading):

"Under the impression, that a more detailed descrip-
4900 tion of these states than had hitherto been published, would be useful, and perhaps interesting, I commenced, shortly after my removal to Missouri in 1819, the collection of materials for the present work. I travelled over a considerable portion of these states, and became acquainted with a number of intelligent gentlemen, residing in different parts of them, who afforded me much assistance in the prosecution of my design. The different state officers, also, were so obliging as to allow me the privilege of perusing many valuable documents in their offices, and making such extracts from them as I desired," and so on.

The WITNESS (continuing): That statement I take it goes to the sources of Beck's knowledge. There is a further indication in the preface as to what the sources of that knowledge were, and as to the books he had used, etc. I judge
4901 that if he had been in lower Illinois, and around St. Louis, as he evidently was, that it is possible he may

have talked with individuals familiar with the conditions of the Desplaines in Illinois and around Chicago.

My attention is directed to the extract from Beck, appearing at transcript pages 289 and 290 (Abst., 132), beginning, "A few years since the country south and west of Lake Michigan, was explored by Messrs. Phillips and Graham," and running to the end of the paragraph on transcript, page 290. As to whether I would accept the statement made there with reference to the passage by boats of eight or ten tons burden, as true, would undertake to elaborate or condition the statement there made in any statement of my own attitude with reference to its validity. Subject to proper explanation and criticism, I would accept it. Would be glad to indicate the way, if counsel cares to have me.

Q. You may indicate the way. I refer, of course,
4902 only to that specific statement to this particular fact: "So that boats of eight and ten tons burden pass and repass from the lakes to the Mississippi through this natural route?"

A. Counsel has so limited the statement that he has distorted Beck's own proposition. Would not care to base any answer whatever on the portion of the statement counsel has just limited me to.

4903 Understand that there were times when due to the melting of the snow in the spring floods, that was likely to result at that season of the year, the waters of the Chicago river and Desplaines were connected in such a way as Hubbard indicates or Child, where the prairie was overflowed; see no reason to doubt that at such times it was possible for a Mackinaw boat which had a flat bottom, to pass across from one to the other. Hubbard makes it clear that the Mackinac boats they used sometimes did pass across. They, however, did not use boats of eight or ten tons burthen. Not knowing how great the draft of an eight or ten ton boat might be, do not know that I would care to give any further definite opinion as to whether it was possible for a boat of that size to pass.

4905 There are some things that would require interpretation in Beck's statement, "These streams approximate within three miles of each other, and when swelled by heavy falls of rain, actually unite so that boats of eight or ten tons burthen pass and repass from the lakes to the Mississippi through this natural route."

First, in the opening statement that the streams approxi-

mate three miles of each other. Sometimes that is true and sometimes the distance is much shorter than three miles, and perhaps sometimes not quite so short a distance. The closing statement that boats of eight or ten tons burthen pass and repass from the lakes to the Mississippi, I understand to be given by Mr. Beck as a general statement of a constant, frequent or general practice. I do not understand that the historical evidence justifies such statement, putting that interpretation that I have upon it.

The passage from Wau Bun, upon which I base my statement at transcript page 3696 (Abst., 1402), "This states that Kinzie carried on most of his trade with out-stations, by means of pack horses" is, from the Caxton Edition of Wau Bun, page 150 (reading):

4906 "Each trading post had its superintendent and its complement of engages—its train of pack horses and its equipment of boats and canoes. From most of the stations the 'fur and peltries' were brought to Chicago on pack horses, and the goods necessary for the trade were transported in return by the same method."

It states on the same page that Kinzie's stations were at Milwaukee, Rock River, and one or more not entirely clear, on the Illinois and Kankakee; and Kankakee, with the Pottawattamies of the Prairies, and with the Kickapoos in which was called "LeLarge," afterwards known as Sangamon County.

4907 As to whether there is anything in the passage to show that Kinzie used pack horses in preference to canoes from his Illinois river station or stations for example, will say I think there is no more detail than has just been read into the record.

As to whether, so far as this particular passage from Wau Bun is concerned, there is no inconsistency between the passage and the possibility that Kinzie sent his furs and peltries from his Illinois stations to Chicago in canoes, I would say the passage states, "from most of the stations the furs and peltries were brought to Chicago on pack horses, and the goods necessary for the trade were transported in return by the same method." The very use of the words "from most of the stations" would not necessarily indicate to my mind that there were some stations from which he used canoes in preference to pack horses.

4908 It would indicate to my mind that there may have been some stations from which he had something else

than pack horses. If counsel assumes that nothing else could have been used but canoes and pack horses, of course it might be taken to indicate that from some of the stations he used canoes.

Q. There is no other indication in the passage as to what means of transportation were used other than the statement that each station had its complement of canoes and pack horses.

Objection: Whatever is in the book speaks for itself.

A. Am not prepared to make a statement on the whole book without an opportunity to examine it. From memory am confining myself to the book, I recall nothing else. If counsel means to let me speak from my general knowledge, I have something else to say. Do not know as I have

4909 any particular general knowledge with reference to Kinzie on this point. As to whether I would regard it as an improper construction of that whole passage, to construe it to mean that from some of these stations Kinzie did use canoes to transport his furs and peltries to Chicago, I would say I see no statement to that effect.

Q. I did not say you did, I asked you if you would regard that as an improper construction of the passage.

A. If you mean to ask me whether it is possible to suppose in the light of that passage that canoes were used I would say certainly it is possible. I do not see sufficient warranty for drawing such a construction; would want something more to construe, I believe.

4910 The point I was on at transcript page 3694 (Abst., 1401), I was endeavoring to show, and I thing successfully, that it is not a necessary conclusion that because the fur trade was being carried on, it was being carried on in canoes. I showed at transcript pages 3964 and 3965 that Hubbard carried it on without canoes, especially because of the difficulty of using the portage to the Desplaines river route. In that connection I cited this passage from Wau Bun to show that John Kinzie, another trader in this vicinity, also was in the habit of using horse in carrying on a large part of his trade. I believe I had no further intent in the matter than the explanation indicates.

4911 As to whether I wanted to create the impression (on my direct examination) that Kinzie did not use canoes to transport his furs from the Illinois river to Chicago, I would say I meant to indicate, as I have said, that two of

the leading traders in this region carried on their transportation of the furs and goods by other means than the canoe and the river, so that it is not at all a necessary inference that because there was fur trade or travel in this region that it went by boat along the Desplaines. Am not sure I had any particular desire in mind about wanting you to infer anything about Kinzie's use of canoes at trading posts which had waterways between them and Chicago.

4912 Without being entirely clear as to the detailed location of some of these places, I suppose it is true that some of these points had no waterway to Chicago. At Milwaukee there was evidently one, also at the Rock River, though at what point in the Rock River does not appear. Presume that would not have been so located as to have direct waterway communication to Chicago. There was one on the Illinois and Kankakee, the exact location not apparent. Then follows the statement that each station had its superintendent, and its complement of engages, etc. Then further that "most of the stations the furs and peltries and the goods necessary for the trade were transported by pack horses from those stations."

COUNSEL FOR DEFENDANT. Beck, page 21 (reading):

"The Desplaines for 14 or 16 miles below its junction with the swamp above mentioned, has scarcely any fall, and may be said to be on a level. Below this the rapids commence, and continue for a considerable distance. A short distance below the commencement of the rapids, the Lake and Desplaines are supposed to be on a level. To this place, therefore, the canal would only require an average excavation of 6 or 8 feet. It is the opinion of some who have attended to this subject, that the canal should be fed from the Desplaines; but the objections to rivers for supplies of water, apply with double force

4913 in this section of the country. It is well known that in the spring all these streams are so filled with water as to overflow their banks for a considerable distance; during this season no canal would be safe, but must unquestionably be swept away. Again, in the autumn they are on the opposite extreme; creeks, ponds and rivers, are completely drained of their water, to supply that immense and greedy conductor, the Mississippi. It is not unfrequently the case, that the savages and travellers are compelled to carry water with them in bladders, and

that they cross the beds of large streams without finding sufficient to quench their thirst."

The WITNESS (continuing): I know of the treaty with the Ottawa Indians of 1816. I have none of it detailed in mind. I believe I recall in general way that it ceded to the government a strip of land about twenty miles wide extending from Lake Michigan to the Illinois.

4914 It is my impression that the object of the treaty was as stated in Blanchard's Discovery and Conquest of the Northwest, with the History of Chicago, edition of 1898, volume 1, pages 490 to 491. There may have been other objects, but that was one. I read from Blanchard, page 491, "The object in securing this strip of land was to construct a military road to facilitate the building of the proposed ship canal."

4915 Doubtless some of the people of the Illinois country were familiar with the treaty and its purposes at that time, and some were not. Would not consider that a necessary assumption at all in a case of a man like Darby. I am not sure would consider it fair or unfair. He might have known and might not. He is not such a man as I would think of, as would certainly know and be familiar with it. It is evident he turned his attention to the subject before he wrote his book of a proposed waterways, though it is quite evident he did not make a very thoroughgoing investigation, if he investigated at all. I say that because of the character of the passage on pages 27 and 28 and following, this section of general remarks. At transcript page 3724 (Abst.,

4916 1411), referring to the statement about the Benton editorial. I said, "It seems to me that such a statement raises suspicion as to the validity of Darby in the mind of the student. The idea that a single editorial which is obviously a biased one, could decide so important a question is little short of absurd." The statement in the book that, "The following interest notice decides the long contested problem" directly contradicts counsel's assumption or supposition that what settled the controversy in Darby's mind was the fact that the government had, by obtaining the cession of this land for the purpose of building the canal and by sending surveyors out to survey the land, and so on, shown its purpose to undertake the canal project. The notice begins with the statement about the sending of Graham and Philips to make the survey of the land ceded by the treaty of 1816.

4917 Then follows the editor's statement of his opinion about the feasibility of water communication. I would not consider it impossible that what Darby had in mind when he said that that notice settled the question, was the fact that that notice showed that what he called the long contested problem had eventually been taken up by the government as a project, and that the government had gone ahead and obtained a cession of lands for that purpose and sent surveyors to survey it. The problem Darby was speaking of was the natural water communication between the St. Lawrence and Mississippi rivers.

4918 Q. Do you think it is a fair inference from that passage that Darby in stating that notice settled the long contested problem, was basing his statement merely on what the editorial said as to the use of the Desplaines in the past?

A. I should think that Darby himself would be pretty good authority for that. His statement is that "the following interesting notice decides the long contested problem," etc.

Motion to strike out.

(Question read.)

A. The statement calls for an inference, I believe. I would infer from what occurs then in the body of the text that Darby had other facts or information in mind, and suppose he continued to hold them in mind when he was making this statement.

Q. So that you did not want us to infer that you drew the inference which I stated in my last question, when you said at transcript page 3724 (Abst., 1411), "The idea that a single editorial which is obviously a biased one, could decide so important a question is little short of absurd"; is that right?

A. My attitude is simply this: We have a book which gives us remarks or observations of a man who made a tour from New York to Detroit in 1818, and as an appendix to the book, under the head of General Remarks, he has proceeded to insert some information with reference to a water communication between the waters of the St. Lawrence and the

Mississippi rivers by way of the Chicago and Illinois

4920 rivers. I think it perfectly evident from the appendix he made no deep study of the matter, and his knowledge of the geography of this region was not accurate or correct, as one would expect of a man whom we might say had investigated the subject; and that he had chanced upon or had come across a newspaper editorial which apparently coincided with his views and perhaps contained further information; and that

he proceeds to append it to his general remarks to the effect that it decides the long contested problem. Apparently he gave it his approval, at least saw no strong reason for dissenting for it, or he would not have appended this editorial for the information of his readers, with this general blanket approval that is contained in the opening sentence of his introduction.

The map which is appended to this book throws some light on the question under discussion.

Motion to strike out as not responsive.

(Question read.)

4921 A. As pointed out, there are statements as to the geography of this region contained in the body of the general remarks which precede, or to which is appended the editorial. Do not suppose he forgot he had that information when he was editing the editorial. It does not seem evident to me that to his mind the editorial was an important and decisive factor, at least so he presents it here.

Motion to strike out.

Q. I am asking you, as to how you wanted to be understood by us in respect to the matter I have suggested?

Objection: Question has been answered.

A. Do not know as it is possible to add to answer just given. Evidently he thought he knew something about the geography of the region. The volume makes it evident his knowledge was not detailed or exact. He then adds the editorial to the introductory statement that has been read. Seems that it is chiefly on the editorial he would have the reader lay emphasis.

4922 I conclude he refers to what he has reproduced here.

Q. In any event you would conclude, would you not, that Darby took all parts of the editorial into consideration, when he said that the editorial settled the long contested question?

A. I conclude he refers to what he has reproduced here. I also conclude that these general remarks indicate that they are thrown in as a sort of addenda. He does not pretend they were based on any personal observations, that he, being interested in the Erie Canal, simply throws in here at the end some detail he happens to have collected or that he has had called to his attention about this other project. Further, he introduces this subject to the Chicago canal by saying, "We will now proceed to examine some of the various intended channels and inter-communications between the Mississippi and St. Lawrence valleys," etc.

Motion to strike out the latter part of the answer, beginning with the words, "I also conclude," as not responsive.

4923 With reference to Flint I have no reason to doubt that boats of five tons burden or thereabouts sometimes made a passage at certain seasons of the year though the morass from one extremity of which the waters are discharged into the Chicago of Lake Michigan, and from the other into the Plein of Illinois. Hubbard's boats were not quite as heavy as that, and easily went up the Desplaines as far as the quantiy of water was concerned. No reason to doubt that a five ton boat did so in a season of high water in springtime, which Hubbard describes.

4924 It is my impression that Benton wrote the editorial just as printed in Darby. I know something of Benton. He lived in St. Louis from two to four years. With the study I made of the matter, came to no definite conclusion as to the date of the editorial.

4925 Will assume it was written in 1819. Will say that Benton had lived in St. Louis from two to four years, I believe. If the editorial was written in 1817, obviously the necessary correction would follow. Speaking from memory, the population of St. Louis at that time was somewhere around one to three thousand people. St. Louis was approximately at the junction of the Missouri and Mississippi, and was the principal city in the inland portion of the United States. It would be engaged in such trade as went up and down the Mississippi and Missouri, and to some extent, Ohio rivers; would be a center for immigrants and travelers and others in coming into the West; was becoming an important center for the fur trade.

4926 I would judge the river or rivers were the chief means of transportation.

Q. Is your observation at transcript page 3726 (Abst., 1412): "It is a matter of common knowledge that newspaper editors write on all sorts of subjects, about only a small proportion of which they are likely to have personal knowledge," fairly applicable to Benton in connection with his statements that hundreds or thousands of boats had been seen at St. Louis that had come down, and so on?

A. Am not aware that Benton at this time had ever been to Chicago or up the Desplaines river route. If he had not, he could hardly base the statement on personal knowledge. He was generally supposed to have come to St. Louis some

time between 1815 and 1817, according to this Life. The editorial was supposed to have been written either in 1817 or 1819, I would suppose it improbable that Benton had ever been at Chicago at this early period.

4927 Pursuant to request by Complainant's Counsel the witness thereupon read from "The Life of Thomas Hart Benton, by William M. Meigs. Author of "The Life of Charles Jared Ingersol," "The Growth of the Constitution in the Federal Convention of 1787," etc. Philadelphia and London, J. B. Lippincott Company, 1904," page 96, as follows:

"When in 1818 or 1819 a commission came to St. Louis directed by the Secretary of War to run a line from the southern end of Lake Michigan to the Mississippi, it was Benton's geographical knowledge that led him to propose to them 'to examine the ground between Chicago and the headwaters of the Illinois river, with a view to the construction of a canal by the Federal Government.' They accordingly made this survey, and upon their return submitted all their observations to him, and he it was who actually wrote the report they made in favor of that route for the canal. He printed the report in the St. Louis Enquirer, probably in April, 1819, and supplemented it by editorial articles, and wrote years later that it 'was probably the first formal communication, upon authentic data, in favor of the Chicago Canal. * * * But I must confess I did not foresee then what I have since seen—the Falls of Niagara surmounted by a ship canal, and a schooner clearing from Chicago to Liverpool,' with a footnote at this point.

4929 As to whether, as a resident of the small town that St. Louis was in those days, Benton would have had excellent opportunities to see and talk to those who might have come down in boats if boats had come down the Desplaines river, would say would think being a newspaper editor, as I believe complainant's witness says Benton was, he might have talked with whomever came to St. Louis in this period. He appeared to have been interested in the whole subject of internal improvement. Assuming that Benton came to St. Louis in 1817 and that the editorial occurred in that year, he may have known little about the
4930 matter. Assuming that he came in 1815 and the editorial was written in 1819, think he might have conversed with fur traders to a considerable extent in that four

year period. I think it improbable he made any personal investigation. If by investigation is meant talking with fur traders, I see no improbability in supposing that Benton had engaged in such talk or investigation.

Q. Such an investigation as that would be enough to give what he said great weight, would it not, if he had made it?

Objection: Not a matter to require conclusion of witness; argumentative.

A. I would say that that would depend altogether on circumstances. Benton was a man of keen intellect and
4931 of immense activity, and of violent prejudices; when he engaged in a cause or controversy, he used oftentimes very extreme language, and went into it heart and soul. It is evident from what has been read of his life that he was much interested in this subject. He was emphatically not a man who would weigh his words judicially and coolly in such a cause. If upon examination of the statements they seemed to me exaggerated and improbable, I would naturally subject them to scrutiny and reject or accept them according to what the scrutiny might determine.

4932 Q. Now, is it your opinion that the time Benton wrote his editorial, some boats which had come down from Lake Michigan to St. Louis by way of the Desplaines river without portage, had been seen at St. Louis?

Objection: No basis in the record upon which opinion can be based.

A. If they "went across the portage and down the Desplaines and the Illinois" they would naturally come to St. Louis in due time. In that event they would be seen at St. Louis. I have no evidence on which to base a positive statement as to whether or not some boats had done that very thing. Do not think it improbable boats had been at St. Louis.

When I said at transcript page 3732 (Abst., 1414), "I do not mean to say that there was no trade or travel whatever, by means of other channels, but that this was the principal route between Canada and the Lower Illinois at that Period," the word "this" refers to the Wabash route, as to whether or not the Illinois river route was one of the other channels I had in mind I am not sure I had any par-
ticular channel in mind at that time. Did not assume
4933 to indicate any. Suppose I had in mind other possible ways of carrying trade. The Illinois river route was one of the channels of travel between Canada and Louisi-

ana, in this period or in general. That statement was based in part, as my direct will show, on the conclusions of Alvord in his introduction to the Cahokia record. In connection with my statement, speaking of Mrs. Baird's reminiscences, transcript page 3767 (Abst., 1428), I construe as one reason for the failure of the captain of the ship to get a cargo, that it was too early for furs; without reference to volume, not prepared to say that was the only reason. In determining the weight to be given statements found in historical sources, a consideration is the writer's opportunity for knowledge. It would depend on specific statements and circumstances surrounding them whether I would give weight to statements made even in a work whose general character I regard as unreliable, if the statements were made in reference to matters of which I could fairly assume the author had

accurate information. Without attempting to repeat my
4935 previous estimate of Wau Bun, I would say the volume

is inaccurate in many respects as to detail, particularly the portion of the volume dealing with the Chicago massacre is probably more inaccurate and less worthy of credence than other portions of the volume. Some things in Wau Bun are evidently true; others I seen no reason to dispute. Have indicated that practically all others who had estimated the work or made use of it, give a somewhat different estimate of it

than I was inclined to do. I would say in general that
4936 those statements based on matters within Mrs. Kinzie's

personal observations and those which were of general knowledge, and which, therefore, she might have been expected to have accurate information of, would be more likely to be credible than some other sorts of statements I might indicate. Would prefer to give judgment on individual statement. In view of circumstances that accompany it. As to the manner in which Kinzie, Senior, got his furs and peltries to Chicago from his trading posts, transcript 3698 and 3699

(Abst., 1402-1403), would consider that is one of the
4937 type of facts concerning which Mrs. Kinzie might well

have been informed, and which she would be likely to have stated correctly. Will say, however, that any statements in Mrs. Kinzie's book of very great importance ought to be verified if one is going to rely on it.

As to whether I did rely on it will say I explained some time ago why I used this statement and in what way I used it to show that there were other ways to carry on the fur trade in this region than by using canoes on the Desplaines river.

Hubbard makes clear that point, and this reference in Mrs. Kinzie's book suggests another; I believe I have indicated now in these answers to what extent I relied on Mrs. Kinzie.

As counsel states he wants to know whether I actually rely on that statement as being a true statement, I would say I have indicated that at the time I used that statement that it was one of the statements in the book that I would suppose worthy of credence; but also if it is a matter of any great importance it would then be properly subject to verification. It is suggestive as a line of evidence certainly, and to that extent I have considered it worth citing in connection with my argument. Counsel thereupon stated, "You cited
4938 other portions of Wau Bun for the purpose of showing, as you stated it, as I understood, that certain statements of Keating's contradict known facts." Whereupon witness replied, "I have a recollection which may not be the same thing as counsel's recollection, so that if we had a specific reference there would be no error arise on that score. I suppose counsel refers to the matter of raising crops here at Chicago.

Q. I think so.

A. If so, I cited certain statements along that line from Wau Bun.

Q. You accepted those statements as correct?

A. I cited them along with a large number of other statements of similar purport going to establish the general proposition that corn and other things could be raised and were raised at Chicago in that period, as tending to overthrow Keating's assertion to the contrary. Would hardly waste the time of court in reading a dozen or more similar references if had been satisfied with the certainty of a single reference.

4939 Would say in that connection with reference to that matter, as I just said with reference to the carrying on of the fur trade, it is a statement of a general condition concerning which she would be less likely to go astray than in some other statements in the book. I see no evidence of prejudice involved in making this statement. I do think Mrs. Kinzie used her language in rather a loose fashion. You cannot expect to rely on a statement of hers in quite the way we would the statement of a reputable or noted historian.

Being asked to assume a statement made by a writer of history in reference to something done by a particular individual whose name is given; that the person so named was

alive and living in the same town with the author at the time the history was written; that such town was a small one with a population of about three thousand; that the history was a local one of that town and that the specific incident in question had occurred less than twenty years before the writing of the history; as to whether or not I would as a historian accept that statement as reliable in the absence of other
4940 evidence, would say it would depend entirely upon the statement and the circumstances which accompanied it. Would ask counsel to put in the further assumption that the individual had a suitable opportunity to correct or deny the statement and failed to do so.

Q. I will assume that the person had some opportunity; the history was written and circulated as histories are, and so far as we know it has never been corrected by the individual.

A. It would be quite important to assume that the individual would have a personal or direct interest in correcting it.

Q. We don't know anything about that; all we know is that the individual was alive.

A. The statement might be correct and it might not.
4941 I would indicate that the individual might not have had an opportunity to deny the statement; may have had an opportunity, but no interest in denying or correcting it.

Q. I say, assume that these facts which I have stated, coupled with the additional assumption that you suggested, namely, that the individual named was alive, and that the history was circulated and that we know nothing more about it; assume that those are all the facts that you can learn, what would you do as a historian? Would you accept such a statement or reject it?

A. I might not necessarily do either. I might accept it tentatively.

Q. Then such facts would be insufficient in your judgment as a basis for a conclusion as to whether the statement was to be accepted or rejected, is that right?

A. I can give counsel a case in point if he cares to have me.

Q. No, I want you to answer my question.

A. It would depend on the circumstances entirely of the case.

Mr. CORNEAU. I move to strike the answer out. Answer my question. Read the question to him, Mr. Commissioner?

(Question read.)

A. I showed counsel the other day, or endeavored to,
4942 perhaps I did not succeed, that the large, if not the major part of the work of a historian consists in applying his method or principles; if counsel prefers that term, to the specific case in hand; that he does not deal with abstract propositions, but he is always dealing with specific propositions. Now I have answered, that in the case he states, the facts might establish it or might not establish it, and have offered to supply an illustration if counsel cares to have me.

Mr. CORNEAU. I do not. I move to strike out the answer as not responsive, and I ask you to state whether or not, if the facts I have suggested were all the facts you could obtain with reference to a particular situation, or citation found in a historical work, you would regard those facts as sufficient on which to arrive at any conclusion with respect to it?

A. I will state that I might regard them as insufficient or I might not, depending on the citation.

Q. Well now what for example?

A. If counsel will state a situation, perhaps I can answer.

Q. I have suggested a situation. What other facts would you need to enable you to come to a conclusion?

A. One condition I have already suggested would be whether the individual had an opportunity to deny the statement or correct it or not.

4943 Q. And unless you could find that out you would not be able to arrive at a conclusion, is that right?

A. I might not be able to arrive at a certainty.

Q. I did not ask you that.

A. You might draw an inference or state the probabilities or state a conclusion and the conclusion would fall short of certainty. Perhaps the facts might be such that you might say that the proposition was established. That is to say, you would have other knowledge that you would bring to bear.

Q. Supposing that those facts were all that appeared; would you be prepared to say that the statement was untrue?

A. Certainly not, unless it seemed evidently untrue or improbable.

Referring to Drown's History of Peoria, transcript 301 and 302 (Abst., 138), he recounts a specific incident of the shipment of provisions by John Hamlin up the Illinois and Desplaines in keel or Durham boats, a keel boat on the Illinois and a Durham on the Desplaines in 1825. Do not happen to

know whether John Hamlin was living in Peoria at the time this history was written.

4945 On page 301 it states: "Another of our old pioneer citizens who is still with us, Mr. John Hamlin." In one sense the book may be termed a local history. It was an almanac also. Am not certain as to the population of Peoria in 1850; not a very large town probably. Drown's History was published in 1850, about 25 years after the incident.

4946 I do not think it is fair to presume that at that time there were doubtless many people living in Peoria who would recall that incident had it occurred. Twenty-five years is a considerable time, and there were hardly any people in Peoria in 1825. I suppose John Hamlin would remember it assuming he had the average memory. My opinion as to the statement in Drown's History about the ascending of the keel boats and Durham boats up the Kankakee and Desplaines with provisions is that what we commonly denominate a "fish story.' Since the line of questioning with which counsel preceded this last question, evidently was intended to have

4947 a bearing on the estimate placed on Drowns, will shape my answer with reference to that fact. This book purports to be a record and historical review of Peoria, and an almanac for 1851, and business directory of the city. Evidently not a serious historical work. It is a tiny volume, paper covered, with advertisements on the back cover, a large number of them at the close of the reading matter proper. Commission merchant, hats and caps, boots and shoes, drugs and medicines, etc.

I call attention to these as indicating the general appearance of the book, and some of the things that immediately arouse the suspicion of the historian before he has begun to read the historical part at all. Turning to the introduction, he will not have that suspicion jolted very severely, it seems to me. Coming to the particular statement to which counsel has called my attention, it deals with facts, or supposed facts, which such reading as I have made of the literature of this period has not corroborated; and I consider that it is extremely improbable that John Hamlin would be exporting—this is given evidently as a continued or long

4948 continued procedure, for it is stated that he had erected a warehouse and that he used keel boats, etc.

Q. Was he not the agent of the American Fur Company there?

Mr. Scott. He is talking about the warehouse at the Kankakee.

The Witness (continuing): That he was exporting pork and beans to Chicago in this way, because the character of the Desplaines river is such that it would be extremely improbable that it would be profitable commercial operation. We know as a matter of fact, from many other sources they did not use the Desplaines in that way in that period, but that they would come up the Illinois in boats as far as practicable, and then take to the stage or wagon or other means of transportation, and sometimes afoot to get across the Chi-
4949 cago in 1825 and later. There is a fall in the Desplaines river of 90 feet in 60 miles above the Lyons dam; at Riverside there is a rock barrier where there is a fourteen foot descent in three miles; below Lemont there is a descent of 90 feet in a distance of 25 miles. Am not certain whether this 25 miles applies wholly to the Desplaines or is projected along the Illinois below the mouth; at any rate, of this descent there is a 76 foot fall in a distance of approximately ten miles between Romeo and Joliet. It seems to me I have gone far enough in my answer to indicate my reasons for not seriously considering Drowns' proposition. I do not know what a Durham boat was. As to whether this data which I just gave here, was suggested for the purpose of showing that the Desplaines river could not be used with boats of small draught, I would say it was not suggested for any particular purpose except to describe the geology of the region as I understand it. Should think if the river was of such a character as that and other sources we have had at our dis-
4950 posal in the case indicates, and if it were also a fact that from the time when the country was settled generally by the whites, there was every reason for desiring a water communication between the head of the Illinois or the mouth of the Desplaines and Chicago, that they sought and employed other means of communication, and if Drowns' book is of such a character as I have briefly indicated, if the story is not corroborated so far as I have been able to discover, that is sufficient to justify one in rejecting or omitting to attach any particular importance to the statement.

4951 I got the data about the falls in the river and so on from the Geological Atlas of the United States, Chicago folio, Department of the Interior, U. S. Geological Survey, Charles D. Wolcott, Director. The volume is in the Crearar Library.

The fact that John Hamlin has not denied this statement or that such denial has not been called to my attention, would not at all cause me to suppose the statement was true. Hamlin may not have cared to deny it; if he cared to, he may not have had the means of doing so in such a way as we
4952 would have it preserved to us. To my mind the fact that Hamlin was living there in 1850 or 1851 does not prove that the statement is true or valid. When I say that is a fish story, as to whether I think that Mr. Drown simply manufactured it out of his own head, I would say would not undertake to give the facts as to the origin of the story. I think it is evidently invalid. I understand that the
4953 term "fish story" is used to apply to stories told about fishes, and in a broader way about other things, where the element of little regard for the actual facts enters into the composition of the stories.

4954 Q. Is it your opinion that when Robert Dickson spoke in this passage that was read to you at page 3780 of the record (Abst., 1432), of the comumnication between Mackinac and the Mississippi by way of Chicago, that he did not refer to the Illinois river route?

A. There is no positive statement in the passage; I suppose he had in mind the Illinois river route.

As to my reason for saying that passage throws no light on the use of the Desplaines, I read from 12 Wisconsin Historical Society Collection, page 134:

> "The communication between Machinac and the Mississippi is carried on by two routes, the one by Chicago, the other by the Fox and Ouisconsin rivers, the latter is preferred on account of the shortness of the carrying place."

4955 I think it a reasonable deduction from this statement that there was travel between the Mississippi and Lake Michigan by way of the Illinois river, or, rather, I would say that I think it is a reasonable deduction or inference from this statement that such was the case. It does not say anything whatever about the Desplaines river, and the inference that we must draw as to the use which was made of the Desplaines, if any, or of that portion of the Illinois, to put it in another way, will necessarily have to be drawn from or based upon our knowledge of the way this portion of the route was actually used in such a period.

I suppose a longer statement, at 3780 (Abst., 1432) of the record, would perhaps have been in order and

as a part of my answer now I will proceed to make that addition. I have shown somewhere else in the record that I think it a reasonable inference that in the case of travel between Lake Michigan and the Mississippi by way of the Illinois river, assuming that it was practicable to use the Desplaines, and that the conveyances and desires of the travelers were such that they could or wished to see the Desplaines, they would do so. That is to say, that we have here a general statement that communication between Mackinac and the Mississippi is carried on by two routes, of which the Fox-Wisconsin is the preferred route. We have nothing further to guide us and I have shown what might perhaps be inferred or deduced as to the use of the Desplaines from that statement; not simply from
4956 that statement but from that statement in conjunction with what knowledge I happen to have of the whole subject.

As to whether the difficulties encountered on the Fox-Wisconsin route were very much the same in character as those encountered on the Chicago-Desplaines, speaking especially with reference to my geological statement of a while ago as to rapids, I would say that without pretending to have made any very careful study of the Fox-Wisconsin route, I have of course seen allusions to it and I have read at least one narrative of a passage along that route. I thinw others also, but I have one in mind. I would say that I do not understand that the Fox-Wisconsin passage can fairly be said to be similar to the Chicago-Desplaines passage or route. One passage I had in mind is the passage in Waubun. As to whether they encountered rapids on the Fox-Wisconsin route, stating my impression I believe there were falls and perhaps rapids. I would have to look up the details if counsel wishes me to describe them.

4957 It is stated in this passage of Dickson that at the Falls of the Fox there is a portage of three-quarters of a mile. Evidently there were falls, for this appears to be unconscious testimony to that effect.

Whereupon pursuant to request of complainant's counsel, the witness read from the 1856 edition of Wau-Bun, page 50, as follows (reading):

> "The Kakalin is a rapid of the Fox river, sufficiently important to make the portage of the heavy lading of a boat necessary; the boat itself being poled or dragged up with cords against the current. It is one of a series

of rapids and chutes, or falls, which occcur between this point and Lake Winnebago, twenty miles above.

The next morning, after breakfast, we took leave of our hosts, and prepared to pursue our journey. The bourgeois, from an early hour, had been occupied in superintending his men in getting the boat and its loading over the Kakalin. As the late rains had made the paths through the woods and along the banks of the river
4958 somewhat muddy and uncomfortable for walking, I was put into an ox-cart, to be jolted over the unequal road; saluting, impartially, all the stumps and stones that lay in our way, the only means of avoiding which seemed to be, when the little, thick-headed Frenchman, our conductor, bethought him of suddenly guiding his cattle into a projecting tree or thorn-bush to the great detriment, not only of my strawbonnet, but of my very eyes."

(Reading pages 52 to 54):

"It was a hard pull for the men up the rapids. Wishtay-yun, whose clear, sonorous voice was the bugle of the party, shouted and whooped—each one answered with a chorus, and a still more vigorous effort. By-and-by the boat would become firmly set between two huge stones—

Whoop la! whoop! whoop!

Another pull, and another, straining every nerve—in vain.

'She will not budge!'

'Men, overboard!' and instantly every power is over the side and into the water.

By pulling, pushing, and tugging, the boat is at length released from her position, and the men walk along beside her, helping and guiding her, until they reach a space of comparatively smooth water, when they again take their seats and their oars.

4959 It will be readily imagined that there were few songs this day, but very frequent *pipes*, to refresh the poor fellows after such an arduous service.

It was altogether a new spectacle to me. In fact, I had hardly ever before been called upon to witness severe bodily exertion, and my sympathies and sensibilities were, for this reason, the more enlisted on the occasion. It seemed a sufficient hardship to have to labor in this violent manner; but to walk in cold water up to their

waists, and then to sit down in their soaking garments without going near a fire! Poor men! This was too much to be borne! What then was my consternation to see my husband, who, shortly after our noon-tide meal, has surprised me by making his appearance in a pair of duck trowsers and light jacket, at the first cry of 'fast, again!' spring over into the water with the men, and 'bear a hand' throughout the remainder of the day."

4960 (Reading, page 54):

"When he returned on board it was to take the car of a poor, delicate-looking boy, one of the company of soldiers, who from the first had suffered with bleeding at the nose on every unusual exertion."

(Continuing reading):

"With all our tugging and toiling we had accomplished but thirteen miles since leaving the Kakalin, and it was already late when we arrived in view of the 'Grande Chute' near which we were to encamp.

We had passed the 'Little Chute' (the spot where the Town of Appleton now stands) without any farther observation than that it required a vast deal of extra exertion to buffet with the rushing stream, and come off, as we did, victorious."

Motion by defendant's counsel to strike out excerpts from Wau-Bun just read by the witness.

4961 The WITNESS (continuing): Referring to my conclusions in reference to Du Pratz, transcript 3784 (Abst., 1433) Du Pratz's statement is that there is a river which is evidently the Illinois, and by this river the first travelers came from Canada to the Mississippi, and such as come from Canada and have business on the Illinois pass that way yet. I said at transcript 3784 that sometimes they came by way of Chicago and over to the Illinois and sometimes by way

4962 of the St. Joseph and the Kankakee. I said, transcript 3784 (reading):

"All that Du Pratz says is that there was travel between Canada and Mississippi by way of the Illinois."

Q. Oh, well, if we are going to quibble about it; what is your opinion? Rid he refer to the Illinois-Desplaines in your judgment, or did he refer to the St. Joseph-Kankakee in your judgment, or did he refer to both, or don't you have any opinion on the subject?

A. My judgment is that he may not have known enough

about the geography of this country to have referred to either of these routes in detail, or to have known in detail as to either of these routes; but reading this passage in the light of the present geographical knowledge of this region, I might assume to apply that to these two references, which is about in effect what I did in this testimony.

Mr. CORNEAU. I move to strike that answer out. Now, will you read the question again.

A. I submit that I have answered the question.

Mr. SCOTT. I submit that the witness has stated fully
4963 and clearly an answer directly to that question.

Q. Will you answer now?

(Question read.)

A. I have answered it.

Q. What is that answer?

A. I said that I submit that I have answered the question.

Q. All right, we will let it go at that. Now, refer to the Dupratz map please. Do you find there indicated a route apparently by way of Chicago possibly the Chicago river or possibly the Calumet river and the Desplaines river and the Illinois river?

A. Upon the map?

Q. Yes.

A. I see none.

Q. Does that help you any in determining what route Dupratz was referring to in that passage?

A. As I pointed out a few moments ago it is evident from the text, and now since counsel has called my attention to the map I will say that it is evident also from the map that Dupratz's knowledge of the region geographically speaking was pretty hazy.

Mr. CORNEAU. I move to strike that part out as not responsive.

4964 The WITNESS. It appears from the map that the river is drawn flowing apparently into Lake Michigan near southwestern corner, and united (that is the interpretation I put on the map), with another river flowing the opposite direction, which I presume may fairly be taken to mean the modern Desplaines. The representation is obviously very inaccurate.

On closer examination would amend last statement by saying, there is a river which flows into southwestern corner of Lake Michigan and the indication "carrying place," seems to connect this with a stream appearing to flow in the other

direction, which I take to be the modern Desplaines. Would interpret the map to mean that the map maker intended to represent the carrying place in that way. The words "carrying place" are close to that point.

4965 Would suppose that one who drew map, if he had in mind statement be made at that time, was referring to a route by way either of the Chicago or Calumet, and the Desplaines-Illinois. Would be a fair construction to put upon passage.

Speaking generally would say secondary evidence is that which is not a first hand statement. Strictly or technically it might not be secondary; it may be third or fourth, or even further removed. Ordinarily one uses term to cover statements which are not first hand.

By secondary I mean statements containing information which purports to have originated on the authority of others.

4966 At transcript 3788 (Abst., 1435) I said:

"Evans describes the Illinois territory generally. It does not appear from his account what parts he went through, or that he went up the Illinois river. * * * I would therefore regard his statement as a secondary one."

By this I mean I regard his statement as one made not as a result of direct personal observation. Charlevoix's statement was a secondary statement; and Evans I assumed at this place in the record, is a secondary statement. Would not say, however, that the two are the same or of equal validity.

4967 As to how I would regard or whether I would regard Lahontan's statement as secondary, it would depend on fact whether or not Lahontan came through the Illinois country. It is my opinion that proposition that he did is not satisfactorily established. There is a general opinion among historians, or on part of many historians, that he himself did not make the trip counsel refers to. From the study I have made of the subject I see no reason to dissent from the general opinion. Of course, there are possibilities, which if counsel wishes I can go into.

It is my understanding that the Lahontan map of the Desplaines region should be put in the same class as his account. I am not absolutely certain at this moment.

4968 At transcript 4274 (Abst., 1613) I stated (reading):

"Concerning my third group, the maps, I shall com-

ment briefly only upon the two subdivisions in order. First, those made by explorers. These alone would rank in the strictest sense as first grade sources comparablo to the oral accounts of explorers, in so far as a map can be understood and legitimately interpreted. Of such maps I have in mind three: Joliet's, Hennepin's and Lahontan's."

Would say Lahontan's map would stand on same basis as the book. If he was not down here certainly he did not draw the map from personal observation.

At transcript 4277 I refer to the other place where I discussed the map.

4969 By way of explanation at this point, I was making a distinction between maps drawn by people who have never come to America, and those drawn by explorers who have toured more or less through America; so I used the word explorers, it being fairly proper to regard Lahontan as such. If there is any impropriety in including Lahontan at this point (Trans., 4274; Abst., 1613), I would be glad to have counsel point it out.

As opposed to map makers who never came to America at all, should say Lahontan might be considered a first grade source, but if the question is whether he went over this region; assuming that he did not, then certainly he would not be regarded as first grade source. Meaning by first grade source, "based on personal observation."

4970 Q. Take Hutchin's map, and I think there were some others, made by men who had been in this country and traveled over it. They were not explorers. I was trying to see if there was any reason applicable to them which would not apply to Lahontan?

4971 A. As I pointed out, was drawing a distinction between men who had been in America and traveled there, and men who had not.

It is proper to call attention at this point to the possibility that Lahontan had been over this route.

Concerning my conclusions as to Forsyth, transcript pages 3791 and 3792 (Abst., 1436), I would suppose that the Indians would make what seemed to be the easiest carriage possible from Chicago to the Illinois river. If the carriage could be most easily made by using river so far as usable, they would doubtless do it I suppose. If it was easier to carry the boats all the way or straight across they would doubtless do that.

4972 The passage undoubtedly speaks of Indians who might come down with canoes prepared to use the water. Assuming that there was water communication between Lake Michigan and the Illinois, would suppose they would follow that water communication. Do not know that I would say anything further as to connecting these two documents. I have put into the record what I knew about the itinerary introduced, the itinerary from Detroit to the Illinois by way of the Kankakee, at transcript 3832 (Abst., 1451). The
4973 conclusion might be better stated than is done there. Would bring to bear on that document such other historical knowledge as I happen to have concerning the matter. Document alone not necessarily shows it was well known route; it would simply show it was a route taken by itself. The title is "A road from Detroit to the Illinois." Then follows details as to distances, and so forth.

It would seem that the author must have had in mind a route or passage from one place to the other. It was doubtless traveled somewhat, or this table would hardly have been made out, I suppose. Have shown the extent to which document is worthy of credence and acceptance.

4974 Referring to Flint and McLaughlin's conclusion, transcript 785 (Abst., 327), that Flint's statement indicates the use of the Chicago-Desplaines route as an avenue of commerce. Waiving the question of extent of such use, would not differ with proposition that if five ton boats went along this route it was used by those five ton boats, and evidently it would be for commercial purposes.

McLaughlin says:

> "I think, taken in connection with the whole passage it indicates to me the use of the Chicago-Desplaines route as an avenue of commerce."

Waiving all points as to size of boats and frequency or extent of use of such boats or passage of such boats over this route, should see no reason to reject the proposition that
4975 the boats went over the route. If that constitutes an avenue of commerce then have no reason for disagreeing with McLaughlin, subject to those qualifications.

Q. Now do you or do you not differ with Professor McLaughlin?

Objection; question not competent.

A. I answered the question a moment ago. Would not care to answer yes or no; should consider it misleading.

Q. You find difficulty in making up your mind as to what an avenue of commerce means, do you?

Objection; same.

A. No particular difficulty on that point in my own mind.

4976 The difficulty is as to whether Professor McLaughlin would use the phrase "avenue of commerce" applied to this situation restricted as I would restrict it myself, or qualify it as I would qualify it. I should suppose an avenue of commerce is an avenue along which commerce is carried.

Q. You would doubt that Desplaines river is such an avenue.

A. I doubt whether Professor McLaughlin had in mind the sort of thing I had.

Motion to strike out.

Q. Taking your own definition of an avenue of commerce do you doubt that the Desplaines river was such an avenue?

Objection; incompetent, irrelevant and immaterial.

A. Have spent considerable time in attempting to develop what I consider the nature of the use of the Desplaines. Will go into that question if counsel desires. Would not care to answer the question yes or no, connecting it as counsel does with McLaughlin's statement on transcript 785 (Abst., 327).

4977 In the terminology of city highways we commonly distinguish between an avenue and certain other streets. I suppose Professor McLaughlin in using the phrase "avenue of commerce" had in mind to answer that this was a general highway of commerce or something of that sort. Probably he would be more competent to explain this than myself.

The point where I think I differ with McLaughlin, is that I do not suppose that the Desplaines route, or this passage at any rate, in light of my general knowledge of subject, indicates that Desplaines route was used as an avenue of

4978 commerce commonly and generally. Would say that in making this assumption will assume that counsel means Desplaines river used by boats in the water. Have had that qualification in mind in making my answer.

4979 At transcript page 3855 (Abst., 1460), I said:

"For example, as shown by the statements in Schoolcraft in 1821; of Tousey in 1822; of Kennedy in 1773; and by the experience of the men who constructed the Illinois and Michigan canal, they found such statement

as this of Flint as to the ease of water communication between the Illinois and Lake Michigan to be untrue, just as Schoolcraft and others had indicated. I conclude therefore that Flint was in all probability misled by this prevalent but erroneous impression."

When I said "they found such statements as this
4980 of Flint as to the ease, and so on, I had in mind a general statement or idea as to the ease of constructing water communication by canal between Chicago and the Illinois or Desplaines rivers. I cited Flint by way of illustration there. Flint's history and geography of the Mississippi valley, volume one, page 323. "By a moderate amount of labor and expense, this river might be united with the Chicago of Lake Michigan." In that answer I had in mind the statement
4981 frequently retailed at that time as to the ease with which the Chicago and Desplaines could be united by canal. Evidently there was a general misconception at the time this statement of Flints was written as to the amount of labor and expense that would be entailed. When they built the canal the expense was greater than they had supposed prior thereto. I believe they were forced to change their plans because they found they had miscalculated in certain essential respects. I am not in entire ignorance of the engineering details and difficulties of the Illinois and Michigan canal, but I have not studied that part of the work so as to feel justified in passing a definite opinion upon it.

4982 As to whether I know in a general way that there has always been a discussion among engineers as to the relative possibility, or perhaps desirability of using natural waterways or independent canals, I would say Schoolcraft says something about succedaneous canalling, and I believed expressed the opinion that that sort of work is not generally practicable; have not looked up the meaning of word succedaneous. Have an impression as to what it might mean. I have in mind the passage in Schoolcraft's travels in the central portion of the Mississippi valley, which reads:

"But it may be questioned, whether this species of succedaneous canalling is calculated to answer a valuable purpose. We believe experience has proved it
4983 cheaper in the end, to open an entire new channel, than to improve the natural bed of a shallow and rapid or one that is subject to great and sudden fluctuations from vernal or autumnal freshets.

This appears to be the proper construction applicable

to that noble idea of the celebrated Brindley, 'that streams were only made to feed canals'—a principle which, so far as we are capable of judging, appears to be adopted by modern engineers, and has been pretty rigidly applied in the instance of the Erie Canal."

In Flint's recollections, page 106, occurs this statement:

"Consider that the lakes are wedded to the ocean by the New York canal. The Illinois will shortly be with Chicago and Michigan; for it is, for a little while in the spring, partially so by nature."

From a general discussion, and what I know of the general idea in the air at that period with reference to
4984 the projected canal, Flint was speaking of the same sort of thing that others were commonly speaking of in that period, about 1826. The first edition of Flint was published in 1828; the second in 1832. Whatever the second contained was doubtless based on the same sort of knowledge that the statements of the first were.

4986 My attention is directed to Schoolcraft's travels, page 332, passage which reads:

"This fact is sufficient to show the error of those who have supposed, that a canal of only eight or ten miles would be necessary to perfect the navigation between Lake Michigan and the Illinois. A canal of this length would indeed perfect the communication, which already exists at certain seasons between Chicago creek and the Desplaines, but must fall far short of the grand purpose."

4987 I would judge from this sentence that Schoolcraft states by implication at least that there already exists at certain seasons a water communication between Chicago creek and the Desplaines. I should call that a positive statement. Do not see that he says anything about commerce and travel and so forth. He says there is a communication. I take it he means a water communication between two rivers, or one he calls a creek.

4988 As to whether by water communication he means a water that could be used for trade and travel, cannot answer that, considering this one sentence alone.

4989 The preceding sentence points out the error of those who supposed a canal of only eight or ten miles would be necessary to perfect navigation between Lake Michigan and the Illinois. Evidently he is talking about a canal to perfect that navigation. He then goes on with the sentence which

has been read to the effect that there is at the present time at certain seasons communication, which I take to be water communication between Chicago creek and the Desplaines, evidently not at all times, and that a canal would make perfect that communication. That is to say, would make a water communication between the two at all times, have no doubt he was thinking of and in a way speaking of a route for commerce between Lake Michigan and the Illinois river.

4990 As to whether I therefore construe that passage in the light of other data which I have taken into consideration as showing that Schoolcraft considered that the Desplaines river was, at certain seasons at that time, being used as a route for travel and commerce, I would say that it was susceptible of such use.

As to whether I think that the construction above suggested would be an unfair construction, I would say in view of the whole passage, for he points out above that he has met traders who are portaging from Chicago creek, and think they can enter the Illinois at Mount Joliet. I suppose it would be a reasonable inference that those traders would have preferred to float their boats in the water from Chicago creek to the Illinois river rather than hauling them across. Presumably then the Desplaines was used, basing my answer upon Schoolcraft, at certain seasons by traders. I understand that this is in harmony with such accounts as Hubbard's and certain others have left us as to such use.

4991 As to whether I would not infer also from that same passage that the Desplaines was used without portage at all at other seasons than the summer time of which he was speaking when he mentioned those traders, I would not care to undertake to infer at just what seasons it was used, that is to say, speaking in months or the cardinal seasons of the year. It would probably be a safe inference that it may have been used when the water communication was perfect. Supposing there was a trader there who desired to use it, he doubtless would do so.

As to whether I think that Schoolcraft meant to say there that during those months it was used, I would reply that I should think that Mr. Schoolcraft would have said whatever he meant to say. He weilded a very facile pen, I judge, from the various books and letters he has left us.

Q. Then you do not think that is what he did say according to the fair construction of the language used?

A. What he did say appears in the volume. Shall I read it?

Q. No, it has been read two or three times. I mean the fair construction of that language.

Question objected to on the ground that it does not require the interpretation of a historian to determine what Schoolcraft said in the passage referred to.

4992 Mr. CORNEAU. I am only asking the witness to do what you repeatedly asked him to do, Mr. Scott, over my objection, and if my objection to the direct evidence should be sustained, no doubt your objection will be sustained.

A. I do not understand that Schoolcraft intended to make any statement as to how frequently or continuously the Desplaines was used; basing my answer on this passage.

Q. Don't you think, however, that he intended to state that it was used?

A. I believe I have made as clear as I possibly can the interpretation I would put upon the passage, as to that use.

Motion to strike the answer out as not responsive.

Question reread.

Objected to for the reasons above and the further objection that the witness answered the question.

4993 I see no statement here in the passage to the effect that the Desplaines was used. There were traders going across the plains that were evidently eager to get into the water as soon as they could. They gave Schoolcraft information that it would be practicable to enter the Illinois, obviously the modern Desplaines at Mt. Joliet. I would

4994 have supposed that they would have entered the Desplaines as much earlier as it was practicable to do, and if it was practicable to sail or float their boats all the way. they would have done so. If as Schoolcraft states there were certain seasons when communication was perfect between the two rivers, if there were any traders who wanted to use the Desplaines, I would suppose they would naturally have used it. I do not understand that Schoolcraft makes a statement here as to the frequency, continuity or extent of such use.

Pointing out the language in Tousey's statement heretofore referred to by me, at transcript page 3855 (Abst., 1460), which conflicts with Flint, I read from Schoolcraft's personal memoirs, page 179:

"The reading of books and looking at maps make a fugitive impression on the mind, compared to the

ocular view and examination of a country, which make it seem as though we cannot obtain valuable information, or money to serve a valuable purpose, without great personal labor, fatigue, and often danger. This was much verified to my satisfaction, from a view of
4995 the great western lakes; the interesting position where you are—Mackinaw, Green Bay, and the fine country between Green Bay and Chicago, and Chicago itself, and the whole country, between the latter place and St. Louis."

The following paragraph he observes that, without actually traversing the country, he refers to, one could hardly believe the advantages, and promise which it affords to civilized men (reading page 180):

"I regard Green Bay, at the mouth of Fox River, and Chicago, as two very important positions, particularly the latter. For many years I have felt a most anxious desire to see the country between Chicago and the Illinois (river) where it has generally been, ignorantly supposed that only a small sum would be wanting to open a communication between them. By traveling on horseback through the country, and down the Illinois, I have conceived a different and more exalted opinion of this communication, and of the country, than I had before, while I am convinced that it will be attended with a much greater expense to open it than I had supposed."

4996 Flint states that appropriations have already been made by the state for the canal. I am not certain that an appropriation for the construction of the canal had
4997 been made prior to the publication of this book. Without looking it up, I cannot answer in detail as to the original plan for the Illinois and Michigan Canal, where it was to begin and end. My understanding is that the idea early in the nineteenth century was that the canal might be constructed very cheaply and paid for by grants of land along the borders of the canal. Have in mind one esti-
4998 mate which puts it at something like $90,000. Am not prepared to state how early in the course of the investigation of the subject this estimate was made. Long's report evidently was talking of a short canal.

Q. Do you think that Long, in speaking of a short canal was referring to a canal of the same sort, that is a canal useable for the same purpose as that about which Schoolcraft

was speaking when he said that a canal of eight or ten miles in length would fall far short of the grand purpose?

Objection; incompetent, irrelevant and immaterial.

A. Long and Schoolcraft were speaking about perfecting the navigation between Lake Michigan and the Illinois Schoolcraft thought to accomplish this a considerable canal must be constructed; Long thought that all that would be required was to construct a canal between the Chicago
4999 and Desplaines river, and improve the bed of the Desplaines by sluices in two or three places as pointed out in the report. Long's report proposed canals and roads (reading):

"A canal uniting the waters of the Illinois, with those of Lake Michigan, may be considered the first in importance of any in this quarter of the country, and, at the same time, the construction of it would be attended with very little expense, compared with the magnitude of the object. The water course, which is already opened between the River Desplaines and the Chicago river, needs but little more excavation to render it sufficiently capacious for all the purposes of a canal. It
5000 may be supplied with water at all times of the year, by constructing a dam of moderate height across the Desplaines, which would give the water of that river a sufficient elevation to supply a canal extending from one river to the other. It would be necessary also, to construct locks at the extremities of the canal, that communicating with Chicago river, being calculated to elevate about six feet, and that communicating with the Desplaines, about four feet.

To render the Desplaines and Illinois navigable for small boats and flats requiring but a small drought of water, nothing more is necessary than the construction of sluices, in a few places where there are ripples of a sufficient width to admit the boats to pass through them. This may be effected by clearing away the loose stones from the bottom, and forming banks riveted with stone two or three feet high, on each side of the sluice. Thus, a water communication between the Illinois and Lake Michigan may be kept open at all times sufficient to answer all the purposes for which a canal will be wanted, for many years to come. A canal uniting the St. Joseph of the lake with the Illinois, by way of the Kankakee, may be constructed also in a similar manner, and with

great facility, except that the distance by this route is considerably greater."

5001 Q. As throwing light on what he speaks of as the channel already existing at that time, etc., read the preceding paragraph, or this paragraph on the preceding page (indicating):

A. (Reading):

"In the flat prairie, above mentioned, is a small lake about 5 miles in length, and from 6 to 30 or 40 yards in width, communicating both with the river Desplaines and Chicago river, by means of a kind of canal, which has been made partly by the current of the water, and partly by the French and Indians, for the purpose of getting their boats across in that direction, in times of high water. The distance from the river Desplaines to Chicago river, by this water course, is about 9 miles; through the greater part of which, there is more or less water, so that the portage is seldom more than 3 miles in the driest season; but in a wet season, boats pass and repass with facility between the two rivers."

Q. Now, to get back to my question; do you think that when Schoolcraft said what he did about a canal of eight or ten miles length falling far short of the grand purpose, he was referring as the grand purpose, to a canal which would furnish the sort of communication that Long describes in that second paragraph which you read, the paragraph beginning "To render the Desplaines and Illinois navigable, for small boats and flat requiring but a small draught of water," and so on?

Mr. Scott. The same objection.

5002 A. My supposition on the whole subject would be somewhat to this effect; that Mr. Long was considerably in error as to the statements he makes here with reference to the Desplaines and the water communication between the Desplaines and the Chicago.

Mr. Corneau. I move to strike that out as not responsive.

A. That is, the statement as to the sort of boats by which his water communication would be navigable, is small boats and flats requiring a small draught of water. I understand that Mr. Schoolcraft is calling attention to the nature of this water communication, or proposed water communication between the Chicago and the waters of the Illinois river; that he expressly points out that a canal of only eight or ten miles to perfect the communication such as already exists at

certain seasons between the two rivers, but would fall far short of the grand purpose. Major Long's canal was evidently one between the Desplaines and the Chicago. Such a one I judge as Schoolcraft may have had in mind in this statement to which I have referred. When Schoolcraft refers to the grand purpose I presume he has in mind that such a canal would be inadequate for the purpose of general traffic and trade such as would be called for in this region;
5003 differing with Mr. Long very materially on that point, for Mr. Long said that his canal would answer all the requirements for many years to come.

Counsel for the government thereupon directed the attention of the witness to transcript page 3866 (Abst., 1462), where, counsel said, the witness on direct examination stated that what Hoffman said about the canal was based on Keating, and that the witness inferred from that that Hoffman's account was entitled to the same weight as Keating's account and no more and asked the witness if that was right, whereupon the witness replied:

My inference is, if this may be fairly described as an inference, that Hoffman was here at Chicago in the winter of
1833 or 1834, as the case may be, and that he spent some days here and doubtless conversed with as many people
5004 as he cared to converse with during that time; and doubtless was filled with the prevalent optomistic state of mind of the people of Chicago at that time as to their situation and prospects. Then I compared his statements in note M with the substance of Keating's report, and found them so similar that I concluded that he relied very largely on Keating for the statements that he made. In order, however, to make it perfectly clear what the basis of that conclusion was and what weight it might be entitled to, if any, I proceeded to put the two passages into the record, so that the court can judge for itself as to the validity of my conclusion.

Q. What I want to get at is this: you did not intend to indicate that in your judgment Hoffman relied solely on Keating's account? That was the point about which I was not clear.

A. I believe I have just answered that question.

Q. Now, if you will turn to page 245, or you will find the sentence I guess more conveniently at record page 335 (Abst., 156) of Hoffman's letter, you will find there a sen-

tence, "I had a long conversation this morning, on the subject, with Major H.," and so on. You find that, do you not?

A. Yes, sir.

Q. Just read the sentence, will you please?

A. (Reading):

"I had a long conversation this morning with Major
5005 H., the United States engineer, who is engaged in superintending the construction of a pier at this place."

Q. Just continue; I will tell you when to stop.

A. (Reading):

"He was polite enough to sketch the main features of the route with his pencil, in such a manner as to make its feasibility very apparent. The canal would pass for the whole distance through a prairie country, where every production of the field and the garden can be raised with scarcely any toil, and where the most prolific soil in the world requires no other preparation for planting than passing the plough over its bosom. The most effectual mode of making this canal would be to give the lands along its banks to an incorporated company who should construct the work within a certain time. The matter is now merely agitated at elections as a political handle."

The passage read occurs on page 335 following a passage on 334 which counsel for the complainant then asked the witness to read, as follows:

"There is one improvement to be made, however, in
5006 this section of the country, which will greatly influence the permanent value of property in Chicago. I allude to a canal from the head of Lake Michigan to the head of steam navigation on the Illinois, the route of which has been long since surveyed. The distance to be overcome is something like ninety miles; and when you remember that the headwaters of the Illinois river within eleven miles of the Chicago River"--

At that point occurs the star referring to the Appendix, note M.

As to whether it is not pretty clear to my mind that the purpose of his reference to Keating at that point is to explain the source of his statement that the headwaters of the Illinois rise within eleven miles of the Chicago river, I would say I should think if that was all he was after it would have been sufficient to have made a much briefer statement than is made in note M. My understanding would be that

he puts in a footnote at this point which may be read in connection with the subject under discussion here.

5007 I do not recall anything in Keating to the effect that boats of eighteen tons have actually passed over the intervening prairie at high water. I suppose that was one of the statements which some enthusiastic citizen of the budding Chicago communicated to Hoffman. Do not recall anything in Keating about the use of pirogues by traders. I stated at transcript 3884 (Abst., 1468):

"That Keating apparently accepted without question the general but ignorant supposition that only a small sum would be wanting to open communication between the Lakes and the Mississippi."

5008 Do not recall that I based that statement on any particular sentence in Keating. I was discussing the volume. As pertinent thereto I read Keating's expedition to the source of the St. Peters river, page 166, volume one:

"And it is equally apparent that an expenditure trifling in comparison to the importance of the object would again render Lake Michigan a tributary of the Mexican Gulf."

Keating evidently had a small sum in mind, according to the plain import of the language.

Q. Now, what do you mean by a small sum?

Objection; incompetent, irrelevant and immaterial.

5009 A. I call attention to the language on page 167 (reading):

"It is the opinion of those best acquainted with the nature of the country, that the easiest communication would be between the Little Calamick and some point of the Desplaines, probably below the Portage Road; between these points there is in wet seasons, we understand, a water communication of ten or twelve miles. Of the practicability of the work, and of the sufficiency of a supply of water no doubt can exist. The only difficulty will, we apprehend, be in keeping the communication open after it is once made, as the soil is swampy, and probably will require particular care to oppose the return of the soft mud into the excavations."

I understand it was generally understood in this period that it would be an easy matter comparatively speaking to cut a channel for a canal such as was under contemplation. When they came to cut a channel they found in place of the

material cut being too soft it was too hard, and the expense greater than had been expected.

5010 I suppose Keating has indicated to some extent by the passage read that they could cut a comparatively short distance through soft earth, and in view of the desirability of the water communication, it would require but a comparatively small sum.

See no particular reason to doubt that Hobson may have told Keating that he travelled up the Desplaines and portage in a boat loaded with lead and flour, (Transcript, 296; Abst., 136). I see no reason to doubt the statement (Transcript, 295), where he speaks of an officer of the garrison having come from St. Louis with a load of provisions a few days before. Seeing that he was here in the spring time, that the water was high, probably higher than usual at this season of the year in this vicinity, and in view of what Hubbard and others

5011 have recorded about possibilities of bringing boats up the Desplaines at such seasons, when in such a condition, have no reason to doubt that they may have done so. Whether it was actually done or not is, of course, another matter. My opinion is that the evidence is not sufficient to amount to conclusive proof.

Q. What is sufficient in your judgment, doctor, to prove a historical fact conclusively?

Objected to because the question is incapable of an answer.

Mr. CORNEAU. Now, let us see if the witness says that. You may answer, doctor.

Mr. SCOTT. I think that is what the court will say when he hears the objection. It is impossible without stating what sort of fact, for anyone to say what would be sufficient proof.

The WITNESS. Does counsel wish to make the question more specific, or direct, or detailed?

Mr. CORNEAU. No, not at this time. I may later.

A. I will say that the question seems to me to have no particular sense or meaning. Therefore I would not care to undertake to answer it.

Q. Now, have you any principle upon which you as a historian work when you are determining the credibility of historical facts?

Objected to because the facts have been gone over very thoroughly with this witness on the cross-examination,

5012 as to what his views as to that are, and as to whether

he has any particular principle, such as indicated in the question.

A. If by principle counsel means method, I have been under the impression that I have; but I have already pointed out to counsel that a historian does not as a rule deal with abstract propositions as a mathematician may, but that he deals with specific matters. Therefore, I have pointed out already to the counsel that in trying to answer such questions as these it is usually desirable, if not necessary to have specific cases in view.

Mr. CORNEAU. Then we will take a specific case. What additional investigation would be requisite by you to determine whether or not—and I mean of course to your satisfaction—whether or not these trips, or this trip, whichever it was, occurred?

A. It is counsel's assumption, I believe, that I am not satisfied?

Q. You said the proof was not conclusive. Are you satisfied?

A. As to what?

Q. As to whether or not Hobson or this other officer, or both as the case may be, made the trip spoken of by Keating, or trips.

5013 A. Without passing any opinion as to whether Hobson was the other officer or not, I would say that I have no reason so far as I am concerned, to question the statement. As I said before, it is not given in such a way that we can say the fact or supposed fact is proved. I suppose it would suit counsel's purpose to say that I have no particular intention or reason to question it at this time.

Would say with reference to my criticism of Thwaites conclusion as to Cass' trip, transcript 4003 (Abst., 1516), that "therefore that Dr. Thwaites' conclusion that he used this route as a desirable one is unwarranted," does not state properly what I had in mind in that connection.

5014 Doubtless the route would be a desirable one if it were safer, and he had the desire to inform the people of Chicago of the existence of Indian hostilities. What I had in mind was rather this: that Thwaites drew the conclusion that aside from such special motives as I have indicated, merely as a general or open choice between two possible routes, one by the Fox-Wisconsin and the other by the Illinois-Desplaines, Cass came by this route; and I pointed out at

that place that there were special reasons why Cass should decide against returning by the Mississippi and the Wisconsin, and in favor of returning by the Illinois and Lake
5015 Michigan. I indicated two special reasons, I believe, at the time.

As to whether I find anything in them to warrant Cass in choosing the water route by way of the Desplaines in preference to using horses from some place down the Illinois, considering the whole situation, and not basing my answer on these two reasons, I point out that Cass was in a great hurry, possessed means of travel rapidly by canoe with a dozen oars; that he had the canoe, and may or may not have had horses; that it was certain the canoe could be used on Lake Michigan, and he may have felt reasonably clear in view of the season and state of weather, and so forth, that it could be used on the Desplaines, therefore on the whole, that it would be a more expeditious way of returning to continue the journey with the same method of transportation. This explanation does not touch the question whether the other method was available or not.

5016 I believe I made my opinion as to whether Hutchins was based on Kennedy clear in my direct testimony, transcript pages 4027-4030. (Abst., 1525.) I amplify my statement on transcript 4029 (Abst., 1526), "The historian will naturally construe," etc. Those five lines of Hutchins' account of the Illinois and Chicago rivers is followed by two page discussion of the Illinois country, to which is ap-
5017 plied the footnote, to see annexed plan, and so forth in appendix number 1, which is Mr. Patrick Kennedy's journal, so I concluded it is reasonable to construe Hutchins in connection with whatever light may be thrown by Kennedy's journal on the subject. I made no statement that Hutchins' account however long it was, was baesd on anything Kennedy said. There is no indication further than what I have shown as to the connection between the two. Hutchins gives succinct account of the Illinois and generally a
5018 little later on, as I have shown, refers us to Kennedy's journal, which he also prints.

As to whether in Kennedy's journal there is nothing about the subject matter of this passage which was read to you by Mr. Scott, I would say Kennedy's journal contains some account of the nature of the Illinois river.

To state as far as I can from memory just how much Hutchins had traveled in the country around the great lakes, the

Ohio and the Mississippi valleys prior to the making of his Topographical Description. I would say speaking from memory, Hutchins had been down the Ohio river and I believe had made a survey of the Ohio river; and had
5019 spent some time in the lower Illinois country around the French settlements; had been at Detroit; in general, had spent a number of years in America and as I have already indicated part of that time at least in the Ohio valley and to some extent in the Mississippi valley. If at Detroit, obviously to some extent on the Great Lakes.

Whereupon counsel for complainant read from the preface of Hutchins' Topographical Description, as follows:

> "Those parts of the country lying westward of the Allegheny mountain, and upon the rivers Ohio and Mississippi, and upon most of the other rivers; and the lakes (laid down in my map) were done from my own Surveys, and corrected by my own Observations of latitudes, made at different periods preceding, and during all the campaigns of the last war (in several of which I acted as an Engineer) and since in any reconnoitering tours, which I made through various parts of the country, between the years 1764 and 1775.
>
> I have compared my own Observations, and Surveys, respecting the lakes, with those made by Captain Brehm,
> 5020 of the 60th Regiment of Foot (who was for many years employed as an Engineer in North America) and I find, that they correspond with more exactness than Surveys usually do, which are made by different persons, at different times."

If counsel seeks to establish by this that Hutchins' work is not susceptible of error, would point out that his survey of the Ohio river was something in the neighborhood of 200 miles in error.

Motion to strike out.

By the statement "Respecting the Lakes" I suppose he referred to the Great Lakes. Am not prepared to make a statement that in his map he shows a great deal of information about the region about the southern end of Lake Michigan, that had never appeared on any previous map. I would have to assume that I have examined every previous map, which is obviously an improper assumption.

As to whether, having in view the examination of maps I

have had made in this case, I recall another map which
5021 shows the great Kennomick river and the alignment of it
in that way, would say I looked over quite a number of maps in this case and I will say I can hardly hazard a statement as to this since I could scarcely be expected to keep in mind all of the details and the dates of the maps on which those details occur. I am entirely unable to answer the question without looking them over again.

Q. You have no recollection on the subject at the present time at all?

A. I would say that I am unable without reference to the maps to place such a matter as that. One looks over many maps and it is obviously impossible unless he has an unusual memory for him to say some weeks later or some time later as the case may be, on just what maps he saw a particular detail which may not have been called to his attention before, I have seen the Kennomick river referred to on various maps; I am clear as to that. I would not undertake to place the dates of the maps or say that I had not seen it on any map—well, what was that question?

(Previous question read.)

A. I would say then, to fit the answer to that question as read, that I have seen the great Kennomick river, or at any rate the Kennomick river referred to on other maps.

As to whether I recall whether they were prior or subsequent maps, will say that is the point that I cannot answer about.

The data I have been referred to by counsel is too indefinite to establish or negative the proposition that Hutchins had been in Chicago or around the southern end of Lake Michigan prior to writing his Topographical Description. Do not understand that this statement in the preface necessarily implies
that Hutchins had himself surveyed all of the lakes, or
5023 all portions of the lakes depicted on the map. As an inference or reasonable deduction, I would suppose the contrary would be the case. Do not recall having studied Hutchins' map.

Turning to the preface, I find this statement: "And upon most of the other rivers." Obviously he had not surveyed all of the other rivers laid down in the map. I think there is direct evidence or implication in support of what I drew as an inference that he had not been over the whole region.

Q. I am correct, in understanding, am I not, that this passage from Hutchins which was read to you by Mr. Scott, tran-

script 4026 (Abst., 1525), "The Illinois river furnishes a communication with Lake Michigan by the Chicago river
5024 and by two portages between the latter and the Illinois river, the longest of which does not exceed four miles," was not based—and when I say not based, I mean there is nothing on that subject—on anything that Kennedy said in his journal?

Objection; the question has been asked and answered.

A. Answering that, I must interpret counsel's question. If he means there was nothing in Kennedy's Journal on the Illinois, I would say no to that. There is a good deal in Kennedy's Journal. If he means to ask if the information on which he based his statement, I simply was making no statement whatever about that. He may have obtained it from Kennedy or may have obtained it from another source.
5025 He presents here a topographical description and gives us a very brief statement in reference to the Illinois river and Chicago, and connection between the two. He prints an appendix, containing a fuller account which Kennedy wrote, Whether that appendix was intended for Hutchin's information or that of his readers, is possibly an open question, but I presume the latter.

As to whether I would say he may have gotten the information on which he based his statement, from Kennedy, I would say I was not making an assertion, I was suggesting a possibility.

Q. You said that was a possibility. The statement I had in mind and perhaps you did not understand me, was this:

> "The Illinois river furnishes a communication with Lake Michigan by the Chicago river and by two portages between the latter and the Illinois river, the longest of which does not exceed four miles."

Do you find anything in Kennedy's Journal upon which by any possibility that statement could have been based?

A. I think not. Kennedy failed to get to the Desplaines and gives no account of Chicago and the portage.

Q. Mr. Quaife, as a historian, have you any reason to doubt the correctness of this statement made in the work
5026 entitled "Illinois in 1837," and I quote from the record at page 4030 (Abst., 1526):

> "About 42 miles above the mouth of this stream is a swamp connecting it with the Chicago river, through which boats of some burden have often been navigated into Lake Michigan."

Objected to as incompetent, irrelevant and immaterial.

A. It would depend entirely upon what the concomitant statements or subjects appended to this or accompanying this are, what the writer may have had in mind by saying "often been navigated into Lake Michigan." That is to say, how long a period, and so forth. What he would consider in view of the length of that period would constitute often. I have no reason to doubt that boats have gone from the Desplaines which I suppose is the river referred to here in this citation to Lake Michigan.

Q. Have you as a historian any reason to doubt this statement in the same work at record page 4031 (Abst., 1526) (reading):

"This route was used by the traders as a medium of communication between the great lakes and the Mississippi from the first discovery of the country by Europeans"?

Objected to as incompetent, irrelevant and immaterial.

A. With the proper interpretation or elaboration or explanation as to this route, I assume in making this answer that this is the Chicago-Desplaines-Illinois route which the citation refers to, and also I assume that "from the first
5027 discovery of the country by Europeans" refers to this portion of the country. I see no reason to question the statement. Explanation must be attached to the statement as to the frequency and character of such use. It should be qualified that the statement cannot be interpreted to mean, or if it does, it is incorrect, that this is the only route, or perhaps even the chief route which was used by traders between the Great Lakes and the Mississippi. I may say then I do not question the proposition that traders in passing from the Great Lakes to the Mississippi and vice versa made some use of the Chicago-Desplaines route. The nature of the use would require details to indicate.

My attention is directed to Imlay, 1797 edition, page 44 (reading):

5029 "After leaving Post St. Vincent, in the route to the Illinois country, you soon fall into those extensive plains which have been described in such glowing colors by Hutchins. This is certainly a beautiful country; and the immense number of deer, elk, and buffalo, which are seen grazing in those natural meadows, renders even

wildness enchanting. The air in this climate is pure, and the almost continual unclouded sky tends not a little to charm the senses, and to render even wildness delightful. The country between Post St. Vincent and Kaskaskies is flat and plain, with little variation. As you ascend the Illinois river the soil grows more fertile, and on either side you find immense forests."

To river is attached a footnote reference which reads:

"The Illinois is a fine, gentle river, navigable to its source for batteaux. Its width is various; in some places it is nearly half a mile, but its general breadth may be considered about 250 yards. The Illinois river furnishes a communication with Lake Michigan by the Chicago river, and by two portages between the latter and the Illinois river, the longest of which is only four miles.—*Hutchins.*"

5030 I understand that Imlay had been in Kentucky. I do not see that this passage shows that he had been in the Illinois country. Would not consider it impossible or improbable that he had been.

5031 Do not think he describes it as though he had been there. He states somewhere in his work that he relied on Charlevoix and Carver and Hutchins and it is evident from this passage here that he has done so to a very considerable extent at least.

Counsel for the government then called the witness' attention to the passage, transcript 4037 (Abst., 1528), reading as follows:

"A great part of it has been described by Charlevoix, Hutchins and Carver. Charlevoix seems to have gone rapidly from Detroit by water the greatest part of the way to New Orleans; Hutchins to have done nearly the same from Pittsburg, down the Ohio, to the Mississippi and up that river to the Illinois; so up that, and from thence to Detroit. He has given a tolerably good account of the Illinois country."

As to whether the sentence, "He has given a tolerably good account of the Illinois country" would tend to indicate that Imlay had to my mind some other information about the Illinois country, would say that I presume a man living in Kentucky would naturally have some knowledge or conception at least as to the character of the Illinois country. If counsel means to ask if this shows that Imlay himself had

been there and seen it, I do not think it indicates that. That is not at all a necessary deduction.

5032 Q. He sort of speaks as though he knew a good deal about it himself, does he not, when he undertakes to say that Hutchins' account was tolerably good?

Mr. Scott. Objected to as argumentative.

A. I suppose the volume will show what he says. If counsel is asking for my opinion?

Q. Yes.

A. Or deduction?

Q. Yes.

A. I suppose Mr. Imlay thought he knew something about the Illinois country. I do not conclude that he had been there. That is, I do not think this passage will show one way or another whether he had been there or not. Perhaps I might express an opinion as to the correctness of some description of something in California, or possibly even of China without it following that I had ever been either to California or China.

Q. What is Imlay's standing among historians?

A. I would call counsel's attention to the fact that on page 63 of the 1793 edition of Imlay, he states that he has not had the advantage of traveling this route, the reference being to traveling by the Illinois river direct; that he recommends his correspondent to read Hutchins' book which he says was originally published in English, and so forth. Now, what is the question?

(Question read.)

5033 A. I suppose counsel would mean by that what do I think Imlay's standing is?

Q. Oh, yes.

A. Since it must be obvious that not all historians agree as to any such matter as this; my understanding then is that Imlay is regarded as a valuable source of information for matters pertaining to Kentucky and which came under his observation or which he ought to have known about. Further that he is regarded as having wielded an enthusiastic pen, perhaps I might best make this clear by saying in some such fashion as Mrs. Kinzie had done in her book Wau-Bun, and that his language therefore is properly subject to criticism and examination. I do not understand that Imlay's book has any particular standing whatever with reference to matters other than those which he may be supposed to have been personally cognizant of; and Imlay in his book makes it clear that he

himself relies on others for accounts of those parts of the country which he had not himself visited.

Referring to the reference which I read from the 1793 edition of Imlay as follows: "As I have not had the advantage of traveling this route," which occurred in the same paragraph which begins with the words, "I must now beg you will travel with Hutchins from hence to Detroit. He will
5034 conduct you up the head branches of this river, and, after a short passage, you will embark again on the waters of Lake Michigan, discovering how the operations of this great country will be facilitated by the peculiar courses of its immense and numerous rivers. His observations, I have been told, are considerably accurate, and, as I have not had the advantage of traveling this route, I recommend you to read his book, which was originally published in England, and no doubt is still to be had," I will say I believe that is correct. That paragraph immediately followed the paragraph which precedes the one counsel read to me from the 1793 edition and is the same paragraph a portion of which I read from the 1797 edition. By way of further information as to what Imlay knew about this country, on page 47 of the 1797 edition I find this statement which is as follows:

5035 "I have gone cursorily over the western country which is peopled, and about to be peopled; but have purposely avoided taking any notice of those parts which are so little known, and of which I could say nothing but from the information of hunters and savages, which has been industriously collected and published by Carver, Jefferson and others. Besides, as it is your wish only to be informed of the advantages of settlement, it would have been idle to have troubled you with accounts of countries that will not be settled, or at least formed into states, in our time."

As to the standing of Imlay among historians, will say, further that he is regarded as an author worthy of consideration, as of some value when speaking of Kentucky in particular, and in general of conditions of which he had personal knowledge and cognizance. Do not understand that he is looked upon as a general authority in any other way, or in any other field, and as I have indicated his language requires careful sifting; he wielded a ready pen, and words are rather obviously at times to be taken in a figurative rather than in a literal sense.

5036 As to the passage first read I do not know what Imlay may have had reference to there. I suggest that he may have referred to Jefferson's work on Virginia; perhaps not. Carver described the travels he took or purported to have taken up the Mississippi. He came back by way of the Fox-Wisconsin.

5037 Cahokia and Kaskaskia were peopled when Imlay wrote. He may have had in mind when he refers to the unpeopled country Northern Illinois, Wisconsin, and Michigan, including Chicago and Desplaines river vicinity.

Q. Have you any reason to doubt the correctness of this statement of Kinzie's in that letter to Cass, 1815, appearing at transcript, p. 232 (Abst., 101), "As at present boats of several tons burden can pass from Lake Michigan into the Mississippi river?"

Objection; incompetent, irrelevant and immaterial.

5038 Answering that fraction of the sentence, I must put some interpretation upon it. Assuming that he means to state that boats of several tons burden can pass from Lake Michigan into the Mississippi generally, or all the time, I consider the statement inaccurate. In the remainder of the sentence he says there are only 4½ feet difference in the elevation of the two waters. If by two waters he refers to Lake Michigan and the Mississippi, I have no opinion to pass. I presume he refers to Lake Michigan and the Desplaines, which I believe would not be entirely accurate. That is I as-

5039 sume the reference to the point on the Desplaines, where the entrance would naturally be made. There is a point on the Desplaines where there is no difference between it and Lake Michigan, and another point where the difference would be exactly 4½ feet.

Q. But now as applied to certain seasons, seasons of high water for example, you would have no reason to doubt the correctness of that statement as I gathered from your evidence already given; that is right, is it not?

Same objection that it is incompetent, immaterial and irrelevant.

A. It would apply to such seasons as Child, I believe, described, or Hubbard described in portions of his work, or perhaps La Salle, although I have not at this moment the definite reference in mind. I see no reason to object to the statement.

Q. Taking the whole letter into consideration and also what you know of Kinzie, would you as a historian conclude

that Kinzie referred there to actual use of that route by boats of several tons burden?

Objected to as incompetent, irrelevant and immaterial.

A. I am not sure that I understand what counsel has in mind in asking the question. I cannot see just what he means to ask me.

5040 As to whether, taking all the facts into consideration that would be pertinent and that are in my mind, as to whether I, as a historian, would think that Kinzie meant to tell Governor Cass that boats of several tons burden had passed, in effect or in substance, I would say I would think what he was telling Governor Cass was as to the possibility; that the conditions are such that boats may pass. That is what appears in the passage itself at any rate.

As to whether I do not think that the passage would warrant us in inferring that Kinzie meant Governor Cass to understand that boats had passed, I would say I presume we might infer whatever we thought probable. Counsel I believe is asking me about this particular passage.

Q. That passage taken in connection with all you know about Kinzie and so on.

A. Does counsel want me to state what I think it would be possible to infer from this passage and these other things that he has allowed me to consider?

Q. No, no; if you cannot answer the question as I put it just let it go.

The WITNESS. As to whether Cass had been governor of Michigan for a year or two at that time, in 1815, would say I haven't in mind the date when Cass became governor of Michigan. I presume he may have been.

5041 Before he was governor he had served under General Hull in 1812 at the beginning of the war, and Hull had been governor of Michigan prior to that war.

Q. Hull probably knew considerable about the Desplaines river route and its use, don't you think?

Objected to as incompetent, irrelevant and immaterial.

The WITNESS (continuing): My attention is directed to a map from the Chicago Historical Society, entitled, "Copy of map of the country of Lake Michigan to the Illinois river, from the papers of Gen. W. M. Hull, Gov. of Michigan from 1805 to 1822." That shows the southern part of Lake Michigan and certain rivers flowing into Lake Michigan, and a portion of the Illinois down as far as Peoria Lake, certain rivers flowing

into the Illinois above that point, including Reynard, the Desplaines and Kankakee. It indicates a portage
5042 between the Chicago and Desplaines river, shows the Chicago, Little and Great Kallimick, and River du Chemin. I read the notation on the corner of the map:

"Distance by water from one river to another as performed by the French navigators of the waters:

	Miles
From Chicagou to the portage	6
The portage	1
From the portage to the river Aux Plaines	9
From the R. De Cross R.	6
To Lake Mounjoliette	38
To R. Du Page	11
To the Fork of the Kankakee	4
To river au Sable	3
To the Big Messane	6
To the little Do	3
To the rapids of Manaenoula	18
To the Fox or R. des Renards	6
To the Vermillion	12
5043 To the Peoria Lake	69
The Lake	21
	213 miles."

As to whether in brief the map seems to be a description of the route from Lake Michigan to the Illinois river, down the Illinois as far as Peoria Lake, I would say as I said a few moment ago it shows those things in addition to the other features that I have pointed out; it shows the whole southern end of Lake Michigan and the north branch of the Chicago river.

Q. Don't you think it is fair to assume that Cass, both from his experience in the country and his association with Hull and so on was pretty familiar with the Desplaines river route?

Mr. Scott. Objected to as incompetent, immaterial and irrelevant.

A. Does counsel mean was he personally familiar with the Desplaines river?

Mr. Corneau. I do not mean necessarily personally so, but don't you think he had some familiarity with it from

such sources for example as Charlevoix got his information about it from?

Objected to as incompetent, immaterial and irrelevant.

A. I am not clear how much counsel wishes me to as-
5044 sume as to Hull's knowledge of the Desplaines river in answering that question.

There had been an army post at Chicago from 1803 to 1812. As to whether that army post had been under general command of General Hull, that is, that he was in command of all this western country, I would say that he was governor of Michigan territory. Kingsbury was in command of the army post a large part of the time, Hull was not in command of this post from 1803 to 1812. During a short period in the beginning of the war in 1812, he was in charge of affairs in the northwest, and superior in command at Fort Dearborn.

5045 It seems evident someone made a map of this vicinity for him. I doubt if he personally had ever been here. He was a man of sluggish temperament physically, and was content to spend his time at Detroit in contrast to Cass who engaged in frequent journeys. He regarded the map as pretty good evidence that there had been a route of travel by the Chicago portage and Desplaines, at some time, prior to
5046 the making of this map. I would say that the map and document as to the route of travel from Detroit to the Illinois, would stand on the same basis, as neither map nor document would have been produced if there had never been any travel by the route that each one deals with.

5047 In Cass' letter, transcript page 229 (Abst., 99), is a general statement to the effect that there were three channels of communication for British traders between the Mississippi, the Missouri country and Canada. There is an indication as to what these routes were. I suppose Cass, or any well informed man in this period, might easily have
5048 possessed as much knowledge of the Illinois route as is indicated in that letter.

Q. And it is very likely, is it not, that Cass and Kinzie were acquainted?

Objection: Incompetent, immaterial and irrelevant.

A. Kinzie was at Detroit at about this time, and Cass
5049 as well. I presume they may have been acquainted. From the fact that Kinzie was addressing a letter to a

man that might be expected to be familiar with the subject on which he wrote, who was governor of the territory, that they were acquainted, and the letter was written to induce the establishment of a post, I do not see that it is an obvious implication that Kinzie must tell the truth. I would assume if Cass knew as much about this particular portion of the country as Kinzie did, there would have been no need of writing the letter.

As to whether Kinzie would not have had about the
5050 same motive that I thought La Hontan had to make his statements as accurate as possible so that people who might be interested in the subject and checked him up, would be inclined to believe him, would say Kinzie apparently had a very direct and obvious motive in writing this letter. He wished to have a post established at Chicago so that he might get whatever encouragement would follow from that establishment, in the prosecution of his trade in this region. I would suppose, assuming that if the man was swayed by any motives of self-interest at all, that he would shape his letter with that in view.

Q. Would you indulge in the one inference in the case of La Hontan and in a different inference in the case of Kinzie?

A. Do you mean to ask me if these two are exactly parallel cases?

Q. No, just exactly the question I put to you.

A. Do you mean to ask, would I assume that La Hontan told the truth and on the contrary, that Kinzie did not tell the truth?

Q. No, you heard the question asked you.

A. Read the question, Mr. Satterlee.

(Question read.)

A. Now read enough, Mr. Satterlee, to show what the two inferences referred to are.

(Record read.)

5051 A. I will say for the record that in my opinion I have squarely answered the question.

Q. I am saying for the record that in my opinion, you have not. However, I will put the question differently: Was I right in understanding that it was your judgment that La Hontan's account was entitled to credence because he would have an incentive to tell the truth, due to the fact that he wanted his story about the discovery of the Long river to be believed, and would therefore make his accounts of the

journey to the Long river as accurate as possible, considering his means of information?

A. I believe I undertook to point out with reference to La Hontan's account that in my judgment the circumstances were such that he would rather tell the truth than to deliberately falsify so far as dealing with portions of the country that were known to Europeans at that time might be concerned. I understand that some historians, who have studied this subject, agree with me, or that I am in harmony
5052 with them in this conclusion. I do not understand that Kinzie wrote with the same purpose or was swayed by the same motive as was Lahontan. Kinzie was desirous of inducing the establishment by the government of a post at Chicago, and had vital financial interest in the reestablishment of a garrison here at Chicago, which may have swayed his statements of descriptions of geographical conditions.

At transcript, page 232 (Abst., 101), his letter says:

"In a few years they will become an object of great importance to the U. States as at present boats of several tons burthen can pass from Lake Michigan into the
5053 Mississippi River there being only four and a half feet difference in the elevation of the two waters."

As to boats of several tons burden, if that is a general statement of constant application, it is untrue. If it refers to seasons of unusual or high flood in the Desplaines, when the country between the river and the Chicago was overflown, I see no reason to object to the statement. As to the difference in elevation, I understand that Kinzie was mistaken that the difference in elevation was greater than he stated.

5054 I referred to Andreas History, page 105, The Lalime Homicide. I assumed until that question was asked that no one objected to the proposition that Kinzie killed Lalime. I had no particular knowledge or recollection on the subject, and referred to Andreas as the readiest printed source of information.

Whereupon the witness read further from Andreas, page 105, in this connection:

5055 "What follows is as given by Mrs. Porthier herself in August and September, 1883:

"My mother was an Ottawa woman, my father was a Frenchman. He was a good scholar, a very handsome man, and had many books. He taught us children to speak French, and we all learned to speak Indian of the

tribe and mother. We had no schools nor education. I never learned to read or write. My father had his house in Milwaukee, where he traded with the Indians and did some blacksmithing for them, and for other traders. He fixed guns and traps for them. Before the fort was burned (August, 1812) my father was down to the fort —the year before—and did blacksmith work there. The family went down while he was there, and some of us lived in the Ouilmette house, across the river from the fort. My sister Madaline (afterwards the wife of John K. Clark) and I saw the fight between old John Kinzie and Lalime when he (Lalime) was killed.

'The Lalime Homicide.—It was sunset when they used to shut the gates of the Fort. Kinzie and Lalime came out together and soon we heard Lieutenant Helm call out for Mr. Kinzie to look out for Lalime, as he had a pistol. Quick we saw the men come together; we heard the pistol go off, and saw the smoke. Then they fell down together. I don't know as Lalime got up at all
5056 but Kinzie got home pretty quick. Blood was running from his shoulder where Lalime had shot him. In the night he packed up some things, and my father took him to Milwaukee, where he staid till his shoulder got well, and he found he wouldn't be troubled if he came back. You see Kinzie wasn't to blame at all. He didn't have any pistol nor knife—nothing. After Lalime shot him and Kinzie got his arms around him, he (Lalime) pulled out his dirk and as they fell he was stabbed with his own knife. That is what they all said. I didn't see the knife at all. I don't remember where Lalime was buried. I don't think his grave was very near Mr. Kinzie's house. I don't remember that Mr. Kinzie ever took care of the grave. That is all I know about it. I don't know what the quarrel was about. It was an old one—business, I guess.

After Mr. Kinzie came back (1816) he came up to Milwaukee and visited my father and took me to live with him. (We were not there when the fort was burned—we had gone back to Milwaukee.) I lived with him until he died, then I married Joseph Porthier.''

I submit that the passage furnishes reasonable evidence that Lalime was killed.

5057 Referring to the Wilson manuscript, wherein is the statement that Dr. Cooper told Wilson that he thought

Kinzie was a murderer, that manuscript says that Cooper and Kinzie had quarreled some years before the Lalime affair, and before Cooper talked to Wilson, and that Cooper had never spoken to him afterwards, all of which appears in what I put into the record.

5058 I believe Wilson made it evident that he accepted the statement of Hubbard in the matter. I stated it to show something as to the character of Kinzie. It is my estimate that it shows Kinzie was a typical Indian trader of the period, with violent antipathies, and strong vigorous character, who might not hesitate to prevaricate to accomplish a thing he had much at heart. If he would kill another in a business quarrel, he might write a letter to Cass, where he was seeking the aid of the Government to recover his business, and

5059 make statements which a candid examination of the facts would not bear out. I would not think that the conclusion that he might make mis-statements would follow from the mere fact that he killed a man, without determining myself whether or not he did it in self-defense.

I am not aware that Cooper's account is at variance with all others.

5060 As to whether there are any other accounts that tend to corroborate Cooper in any way would say I am not aware what all other accounts say; therefore I cannot answer counsel's question.

Being directed to turn to some others that tend to corroborate Dr. Cooper's account I would say speaking from memory and not having looked the matter over for some time, I think it would be found that Dr. Dilg in general would corroborate Dr. Cooper; that the main argument of the killing of Indians was not entirely a Sunday school affair so far as Kinzie was concerned.

To explain what I mean by the expression "Sunday-school affair" would say that Kinzie was not so innocent of all evil intents in the matter as Mrs. Porthier would make it appear from this passage in Andreas, which counsel has had me read into the record.

I believe Mr. Head would not seriously disagree with Mr. Dilg or Cooper as to this matter, although I am not certain in connection with this matter whether Mr. Head touches

5061 upon the killing of La Lime. He does deal with Kinzie's character. Dilg was a resident of Chicago who may be described perhaps as an antiquarian who delved much in Chicago geology and in Chicago local history especially as

dealing with Indian affairs, and I might say perhaps especially in dealing with the Chicago massacre.

A. I would not be inclined to disagree with counsel's suggestion that he was not in Chicago at the time of this Kinzie La Lime affair. He died about the year 1901 or some such date as that.

Q. Well, I never heard of the man before. Can you turn to what he says on the subject?

A. I will say that Mr. Dilg's manuscript is in the form of criticisms upon some 90 or 100 odd accounts of the Chicago massacre that he has found and comments upon, and that it is in lead pencil largely. I presume it would take some time.

Q. Let us not stop for it then. Have you arrived yourself to any conclusion as to the true facts?

5062 A. Some of the facts I have and some I have not. In general I would say that it seems to me perfectly evident that Kinzie killed La Lime; that there had been a rivalry between the two men for some time prior thereto; that Kinzie was a large powerful man; Lalime small and slight. As to the actual killing, accounts differ widely. Immediately

5063 after the killing, Kinzie fled to the woods, escaped to Milwaukee. Apparently after the thing had blown over sometime he returned to Chicago.

I regard Mrs. Porthier's account with suspicion, because she states things I think she could not have known, and that she and her father were friends of the Kinzies; that she made her home with them for a considerable time. Would regard her account as second hand version of what Kinzie himself may have said. The account was obtained from her about 1880 concerning what happened when she was a child in 1812. She was an illiterate woman; and it is probable that the man who took the account from her lips, secured an interview with her, and might have colored what she said as he pleased,

5064 in the way newspaper reporters are in the habit of securing interviews.

As to what Hubbard thought, he was an intimate friend of the Kinzie family. He came here first in 1818, and evidently relies for his knowledge of the affair upon what Kinzie told him. Do not suppose that the exact amount of culpability of Kinzie can ever be settled.

5065 Some accounts, speaking from memory, state that some investigation or inquiry was made by the officers of the garrison at Chicago as to whether they ever took any action in respect to the affray. I will say that it may be assumed

that was favorable to Kinzie, else he would not have dared to return and continue his residence. That is not my own assumption. I think it is not a necessary inference that they concluded Kinzie was innocent, because he escaped punishment. Mrs. Porthier says, Andres (reading on page
5066 73):

"He was concealed in the woods until night and then taken to Milwaukee by some of the Indians, where he was kept in the house of Mr. Mirandeau, the father of Mrs. Porthier, until the facts of the case were known, and it was safe for him to return. Mr. Lalime had warm friends at the fort, and until it was known that the killing was accidental and the struggle, on Mr. Kinzie's part, in self-defense, great anger was excited, and many threats were made against him. The verdict rendered by the officers at the fort, on the examination of the circumstances, was 'justifiable homicide,' and Mr. Kinzie returned to Chicago as soon as his wound was healed."

Would like to ask counsel why Kinzie fled if he was innocent in reference to this affair.

5067 Would disregard Mrs. Porthier's statement here. That is would hold them as only suggestive, and of no importance, unless I had corroborative evidence supporting them.

As to whether at record, page 4081, I stated of Kinzie that "though a citizen of the United States he trimmed during the war of 1812 and entered the British service during the war, also that in this very year, 1815, in which this letter is written, Kinzie was still in the British service." I think counsel is mistaken as to the reference.

I will say for counsel's information that I think he had taken up Kinzie some time before and I merely returned to that subject because the book had been produced, I was asked for the evidence and the book being produced I came back to it.

5068 As to whether I recall that statement, I would say I think I made no such statement. I will call counsel's attention to page 4058 (Abst., 1535) of the record as follows:

"Further as to the character of Kinzie, without undertaking to pass final judgment upon him at this time, I would observe that there is evidence in existence which is worthy of very careful and serious consideration, which tends to indicate that he killed his rival, John

LaLime, in a quarrel over business rivalry, in a way that is strongly suggestive of murder, although I do not know or say at this time that it is susceptible of proof. That through a citizen of the United States he trimmed during the war of 1812 and entered the British service during the war; and that while so engaged he trimmed again, at least his associates believed him to have done so, and proved a traitor to the British, and therefore they sought to visit out punishment upon him. That in this very year, 1815, in which this letter is written, Kinzie was still in the British service."

COUNSEL FOR THE COMPLAINANT. That, at any rate, was the statement I had in mind.

Now, I assume that you read all of the report of this court martial proceedings in the 19th Michigan Pioneer and Historical Collections which you cited in support of those statements, did you not?

A. Without remembering I would suppose that I did.

5069 At any rate, I have read considerable of it, I presume all of it, perhaps.

The court of inquiry apparently convened on October 10th, 1815, I believe for the purpose of inquiring into the conduct of Lieutenant Cadot on an expedition which he was directed to make in 1814. The paragraph transcript 4084. (Abst.,

5070 1543) beginning "These men had likewise done much mischief," etc., and ending "in irons, to Amhertburg," and so on, I would consider as evidence, showing that Kinzie was in the British service in 1815.

I call attention to 16 Michigan Pioneer & Historical Collections, page 333:

"Capt. Nelson of the Schooner Vermillion being duly sworn was examined as follows:

Question. Do you know anything of Kinzie or of his being employed by the British Government?

Answer. Yes. He was acting as an officer in the Indian Dept. & employed by Genl. Proctor & Col. Elliott, in taking Powder to the Indians. At the beginning of the War, he came in with the other Indians, dressed like them and acting like them with the British Troops. He was afterwards discovered by Tecumseh to be acting a treacherous part with the Indians who told General Proctor in council that if he was not hung the Indians themselves would put him to death. After being sent

in irons to Quebec he made his escape & is now a Tide Waiter at Detroit.

Question. How long have you known Kinzie?

Answer. I knew him twenty-five years chiefly at Detroit.

Question from the Court. Did you conceive him to be a British Subject?

Answer. I did, & believe him to have been enrolled in the Militia as such.

Capt. John Askin Ind. Dept, duly sworn:

Question from the Court. How long have you known Kinzie?

Answer. Since the year 1787.

Question. Do you know him as a British subject & of his being in the service of Govt.

Answer. Yes, he was enrolled in the militia commanded by my father."

5072 The quotation is "even when employed in the British service, under Mr. Dickson at Detroit, in 1815, they were industriously exerting themselves to seduce them from our alliance." Am not sure whether an examination would show that that statement is in error as to the date.

Michael Courolle, page 331, testifies in 1813, Chadronet was an interpreter in the British Indian Department, and he believes that Kinzie was also employed in the same manner by Dickson.

Upon being requested by counsel, I read from 10 Michigan Pioneer and Historical Collections, page 328, paragraph following the one I read at transcript page 4084 (Abst., 1543) (reading):

5073 "This man, in conjunction with another of the name of Burnet, also a British subject, in the same year headed an Armed Party of the Enemy & carried off Prisoners to Detroit, the British Traders between the Grand River & St. Josephs on Lake Michigan named as per margin."

The names in the margin are Jos. Bailey, E. E. Lamorandie, McBurnet, D. Bourassau.

"Lt. Col. McDonall was so impressed with the necessity of seizing these worthless men who had so repeatedly transgressed against their country that one of his first acts on his arrival at Mackina was to dispatch a party from thence, to bring them prisoners to that

place. Lieut. Chadronet who commenced it had married the sister of young Chadronet's mother above alluded to and had brought him up in his family with the affection and kindness of a father, but the wretch with almost unparalled ingratitude, on his (Lieut. Chadronet's) landing and telling him, he must come in a prisoner with him to Mackina and seized his rifle and shot him on the spot. It therefore became an object of importance to rid the country if possible of these pests and Lieut. Cadot was especially instructed by Lt. Col. McDonnall to spare no pains or expense in causing them to be made prisoners and sent in to Michillimack-
5074 inac but no opportunity having occurred and having delivered his presents he returned to that place on the 26th January."

As to whether that does not show pretty clearly to my mind that all these obnoxious things, that according to Lt. Col. McDonall, Kinzie had done, occurred before the time he instructed Lieut. Cadet to arrest them, I would say I thought counsel was asking me about the time when Kinzie was in the British service.

Q. No, I understand this is pertinent; as I gathered from the account it is about like this: Lt. Col. McDonall undertook to explain before the court martial began to hear evidence began to hear evidence the way in which Lieut. Cadot happened to be sent on this mission and why he had endeavored to take Kinzie. That was the charge against him, as I gathered and so he explained the various reasons why he had sent Cadot out to take Kinzie and he enumerated them all, and those things which he enumerates were happenings of course which occurred before Lieut. Cadot was sent out. That is about the way I read the account. I am just asking you if you do not think that word 1815 is a misprint? 1813 seems to me to be the correct date?

A. This being a point that I had not particularly considered until counsel recently called my attention to it, I would say that I am not certain at the moment. I
5075 would say in reading the passage which counsel has just had me read into the record that they are dealing there with the latter part of 1814 and early part of 1815; that is to say, down to the 26th of January. And further, the opening sentence of the next paragraph is "On the 2nd of March," and so forth. I am not clear on that point and

would have to ask for an opportunity to study the document before I answered finally.

Q. Supposing you study it just a little now if it won't take too long.

A. Without having gone through all the document, but only the next two or three pages at this time. I will say it seems evident that the beginning of the offenses with which Chadronet and Kinzie were charged must have been before 1813. It is not evident from this examination that I have just made that those offenses had ceased at 1815. I think to the contrary that Kinzie and Chadronet were still at large in this country and Cadot was expected to apprehend them. That this expedition of Cadot's apparently began in the late fall or early winter of 1814 and continued over into the beginning of the year 1815, for he, having spoken of the conversation he had with the Indians and the putting of a price upon the head of the characters he was seeking to apprehend, further goes on and shows, and I am referring to page 330 of the volume, that he returned to Mackinaw on the 26th of January.

Q. Now, don't you gather from the whole account 5076 that this arrest of Kenzie by the British and his transportation to Quebec and his subsequent escape all occurred before Lieut. Cadot was sent out by Lt. Col. McDonall?

A. Will it be enough to say that I gather that the beginning of this offense of Chadronet and Kinzie occurred before 1815?

Q. You said the beginning, but it was not clear from that fact whether you included this particular incident I spoke of as the beginning or intermediate or the end.

A. My impression is that an arrest of Kinzie occurred prior to 1815. That Kinzie had escaped and is believed at any rate to be at large in this region at this time, and that Cadot goes out to apprehend him.

Q. I am not yet clear whether you made this as a positive statement or a statement that there was evidence to show that in this particular year 1815 in which this letter was written Kinzie was still in the British service. That would require a modification, would it not; at least if you used it in the sense of meaning that he was actively employing himself in the aid of the British government?

A. I believe it will appear on an examination of my state-

ment that I said there was evidence worthy of consideration to this effect. I see no reason as yet to modify that statement. Perhaps a more careful examination and study
5077 of the document might lead me to modify it; but such hasty examination as I have here made while counsel was questioning me, has not led me to do so as yet.

As to whether I have some other sort of service in mind as service by Kinzie than this employment as interpreter by Dickson mentioned by Lt. Col. McDonall, I would say I would have such service as was indicated in this account of the proceedings of the court of inquiry. I have not in mind as to whether this is the only reference to Kinzie's service or not.

As to whether Dickson was in Detroit in 1815, the war came to an end that year, and I presume he would have moved on even had he been there at any time in the year.

5078 My impression is that Wau-Bun states that Kinzie was born in Canada. At any rate he spent some time of his early life there. Dr. Thwaites states he was born in Quebec, and that the family moved to Detroit. He came to Chicago about 1804; stayed until the Chicago massacre,
5079 which occurred in 1812. I suppose he was not in the British militia during that period. After the massacre he went to Detroit. Assuming that he went there a few months after the massacre, it was in possession of the British.

As to whether I do not understand that Kinzie was in the militia at that time I would say in reference to this
5080 and other questions that are being asked along this line that I understand there is a good deal of dispute and difference of statement as to just what Kinzie was doing during these years from 1812 to 1816.

As to whether I have anything to show the date when he was in the British militia I would call attention to the court of inquiry proceedings on Lieut. Cadot's conduct.

Q. I think you will find no statement as to any date when he was in the British militia. See if you do.

A. There is no date given. I would judge from John Askins' testimony that it probably was some time prior, a considerable time prior to the war of 1812. That is an inference of course or an impression.

As to whether he was in the employ of Mr. Dickson as an interpreter there is not any evidence of his being in any sort of British service during the war of 1812, I would say that if counsel asks me if there is no evidence I would call atten-

tion to the testimony of Captain Nelson. I am not passing an opinion as to the validity of that testimony.

Whereupon at the request of counsel the witness read the first question and answer of Captain Nelson.

5081 "Do you know anything of Kinzie or of his being employed by the British government?

A. Yes, he was acting as an officer in the Indian Department and employed by Gen. Proctor and Col. Elliott in taking powder to the Indians.

5082 At the beginning of the war he came in with the other Indians, dressed like them and acting like them with the British troops. He was afterwards discovered by Tesumseh to be acting a treacherous part with the Indians who told General Proctor in council that if he was not hung the Indians themselves would put him to death. After being sent in irons to Quebec he made his escape and is now a Tide Waiter at Detroit."

As to whether that indicates to me that he was in the British service after the outbreak of the war of 1812, I would ask would he be taking powder to the Indians and employed by General Proctor and Colonel Elliott during the war of 1812.

As to whether there does not seem to be some inconsistency between these statements as I read it, I would say counsel asked me if there was any evidence and I undertook to answer the question by citing the evidence.

Whereupon counsel for the government stated that
5083 the inconsistency was in this, whether Kinzie was acting at the time, as the witness construes it, from the beginning of the war, and at the same time came in with the Indians at the beginning of the war.

The WITNESS. If counsel will explain the point perhaps I would see it more quickly.

Q. I tried to just a moment ago. The statement is that he was employed to take powder, and so on to the Indians, and the other statement is that he came in with the Indians at the beginning of the war, dressed as one of them and so on. Do not these two statements seem to you to be inconsistent?

A. I am not clear that they are. They may be possibly. He might be dressed like an Indian and acting in that fashion and still be an officer in the British Indian department. If you mean to ask as to the phrase "At the beginning of the war," I would suppose that to be incorrect if you interpret that to

mean at the time when the war first began. If you interpret it in the early period of the war it might not be incorrect.

Q. Just give us your opinion as to the validity of that evidence whether it is inconsistent or not?

A. I believe I have expressed that opinion, have I not?

Q. I did not hear it; at least I did not understand you then. As to the validity of the evidence and as to
5084 whether he was serving in the British service at this time?

Q. In the Indian department, yes; as to whether Captain Nelson's evidence in that respect was true. Was he not in that at the beginning of the war?

A. I have already called attention to that; the beginning of the war might mean the day war was actually declared or the day hostilities began; or it might be interpreted as speaking generally at the beginning of the early period of the war. One says at the beginning of the summer, but he does not necessarily have in mind the actual day on which summer begins.

The testimony of the various witnesses is uncertain. In a general way, one would expect there would be discrepancies in detail where different men, who have been in different places, undertake to testify on a common subject. A historian generally does not have the available evidence which
5085 has been given under such circumstances as this. The men were put under oath, and are presumably men of some standing, judging from the rank and position which they held. As to whether or not this is prejudiced testimony, I have not gone into that. It is certainly evidence that is worthy of serious consideration.

Whereupon the witness read Colonel McDonall's letter transmitting the report of the court of inquiry from 16 Michigan Pioneer & Historical Collections, page 325, having been requested so to do by complainant's counsel (reading):

> "His Excellency directed me to a full and complete investigation of the circumstances complained of, I was fortunate in still having at this remote Post so many of the necessary evidences. Solemnly convinced in my own mind that the charges in themselves were a base calumny and utterly without foundation, I felt peculiarly interested in their refutation conscious that their chief object was to shut our eyes to the manifest infringement of the Treaty of Ghent, and to the horrible

tragedy which they meditate against the Indians of the Mississippi."

5086 As to whether or not, taking the whole thing together, I get the idea that this court martial was a sort of rescue corps of ten or a whitewashing affair, will say that without having read all of this letter to which counsel has called my attention, I would suppose that the writer, Lieutenant Colonel McDonall, was convinced that the charges which he referred to were unfounded. If that is true, I am not sure that it would be at all fair to call this a whitewashing report. That is, I understand that the term "whitewashing report" is usually applied in an unfavorable sense. If the thing were untrue and it was his expectation that the court of inquiry would show that fact, it might not and need not necessarily be a whitewashing affair.

5087 I call counsel's attention further to the fact that there were two things which this court martial inquiry knew; one was with reference to Cadot's treatment or attempted treatment of Chadronet; and the other was the charge as to the British seeking to incite the hostility of the Indians after the treaty of peace and that I believe is what he especially considers is unfounded and expects to refute.

As to whether his whole letter discloses a good deal of prejudice toward the Americans, would say I have not read the whole letters. I would suppose that a soldier of Great Britian in 1815 would not be entirely unprejudiced with reference to the United States, or entirely friendly toward them in his feeling and disposition.

Speaking from memory and not having read the letter I believe that it was the case, that complaint had been made by the American government concerning these matters which were under investigation. I think he mentions in that letter that about that time, 1815, Governor Cass recommended Kinzie for employment by this government as Indian agent at Chicago.

5088 Governor Cass' letter of 1815, transcript page 230, (Abst., 100) referring to Kinzie, says:

"Whom I recommend to you for the appointment of Agent at Chicago."

It is not apparent when that recommendation was made; evidently prior to this time.

Logan's report appearing at transcript 4065 (Abst., 1537), is dated 1718.

I believe Pennsylvania traders during the first half of the 18th Century penetrated to the Ohio, and traded along it.

5089 Winsor's Mississippi Basin (reading on page 149):

"The Carolina traders had put up two booths on the Wabash, and rumors reached Kaskaskia of other stations which they had established farther up the Ohio valley. These last intruders were probably Pennsylvanias,—at least, it is so assumed in the treaty made at Albany in 1754. The language of such treaties is rarely the best authority; but it is certain that Vaudreuil, in Quebec, believed it at the time."

The date that is referred to here, then, is evidently 1725. We assumed Logan's report was in 1718.

5090 Ouiatanon was established about 1720. It shows in general here that there was a dispute between the French and English as to the Ohio and Wabash, and lateral valleys, and that the chapter heading shows that Winsor is talking in particular about the period from 1720 to 1729.

In my criticism of Logan's report, I referred to Ramezay's report, and conclude (Trans., 4068; Abst., 1538), "I presume it is a fair inference that if a fort already existed in Chicago in November, 1705, this recommendation would not have been made." Instead of 1705, the date should be 1715.

5091 In 1715 there was no fort at Chicago, and Ramezay urged the establishment of one. Logan's report in 1718 mentions that there was one there. It is conceivable that there was not one in 1715, but that there was one in 1718, but I have seen no evidence that a fort was established here in that period. I have in mind a general understanding that there was no establishment at Chicago at that time, which

5092 I think would be capable of demonstration. My point was that I understood there was no fort in Chicago in 1718. I supposed Logan, if so far as he was not in error, was speaking about a fort across the lake. I know of no evidence of there being a fort in Chicago in 1718, and it is extremely improbable, if not certain, that there was not any there in that year. Ramezay's report would show there was none in 1715. The fact that Justin Winsor used Logan's report and the degree of validity because of that use, would depend entirely on how he used it, and how valid I considered the use he made of it might be.

5093 I note that Justin Winsor simply states that this land carriage is described by Logan thus and so. He evidently does not state that he approves of the description.

I would suppose, seeing that Mr. Winsor made that statement, that Logan had so described it, that that was pretty good evidence that Logan had given such a description, and in fact we know that he had. Counsel's point being whether this would establish the validity of the report, Winsor makes no statement whatever as to that that I see. I would like to ask for my own information if counsel stated that Ramzay's report threw any light on Logan's report, or as to the validity of the report?

As to whether the fact that Justin Winsor referred to it and used it at that point would give it any weight, I would say simply this, that it indicates there was no fort there in 1715. Then if Logan's report was correct such a fort must have been established between 1715 and 1718, and unless it can be shown that it was, or on the other hand, if it can be shown that it was not during that period, then Logan's statement would obviously be incorrect.

5094 I have no reason to doubt Long's having been in Chicago. I could not prove it, though I think it reasonably evident he was here in 1817, or before the making of the report of 1817.

5095 My attention is directed to the map which accompanied Long's expedition of 1819 and 1820, compiled by Edwin James in London in 1823. On the lower right hand corner is the notation "Long's route 1817." Here are dotted lines up along the Illinois river coming to the Illinois river with notation "Long's Route, 1816." Other routes are shown through the country. There is no notation on them as to date, but running up toward Lake Michigan, around the lower end of the lake and over to Chicago and so on.

Q. That would indicate, would it not, that Long had come out on his expedition of 1816-1817, by or over a route up to the foot of Lake Michigan, and thence to Chicago, and thence down the Illinois valley and around St. Louis

5096 and then back again by way of a southern route down toward the bottom of the map, having in mind the fact that the route through the Illinois valley is indicated as the route of 1816, and the fact that the route over at the lower right hand corner of the map is indicated as the route of 1817?

A. I am not sure that necessarily follows. Am willing to say that the map indicates that whoever made it apparently thought that Long was going down through Illinois in 1816,

or up as the case may be. The rest of the assumption would not be evident.

Do not know when Long commenced his expedition of 1816-1817.

5097 On page 196 of the National Register for January to June, 1817, there is an allusion to the garrison at Chicago, and so forth. As to whether that would fix the time of his being in Chicago in all probability at sometime after the 4th of July, I would say, evidently his presence in Chicago was after the fact he has alluded to here, else he could hardly have made the statement. It may have been any time up to the 4th of March following, so far as the report shows. I am not aware of any other expedition by Long, than those of 1816-1817 and 1819-1820.

5098 Assuming that Long traveled the route indicated by the map, it might have taken three months to go from Chicago to Washington. As to whether it is pretty clear, that according to the map, and the long statement about the progress, had been made on the fort, he was in the Illinois country between July and December, 1816, I would say it is clear that he was at Chicago between July and March, 1817.

5099 I would suppose Long made his observations of the Desplaines, if he made any, between July 4th, 1816, and March 4th, 1817. Assuming that the map is correct, I would suppose it was sometime in 1816 rather than in 1817.

Counsel says that at transcript page 4092 (Abst., 1546) I state in effect that the editor of the Navigator had not been entirely frank and truthful with his readers; that I read a passage from the advertisement which preceded the text, and called attention to the fact that the same passage appeared in the advertisement of the seventh edition as to which of the two statements I think lacks frankness or truthfulness. I pointed out there why I made use of these statements, and they seemed to me misleading.

5100 My statement there is:

> "If this statement means anything at all, it seems to me that it means that this particular edition has been so improved as compared with preceding ones; yet I turn to the seventh edition published in 1811, and find the same paragraph word for word."

As to whether I mean that the 1824 edition, as compared with the seventh edition, had not been considerably enlarged, I would say I meant to say, and that is what I said, and if I am

wrong it will be made evident by comparing the two prefaces, for I offered at that time to read in what appeared in the preface of the seventh edition that the same statement appeared in the two. It is conceivable that the seventh edition may have been improved and enlarged over previous editions.

Q. Did you check up to find out whether or not that had been done?

A. Did I measure the editions, do you mean, as to what was in the volume?

5101 As to whether I examined them in any way to satisfy myself that the seventh edition had not been enlarged as against the earlier editions, and that the 1811 edition had not been enlarged as against the seventh edition, I would answer, no.

Q. Then I fail to get your point. Can you explain to us a little more in detail just what you mean?

A. I will answer counsel's question by reading from page 4092 from the record:

> "If this statement means anything at all, it seems to me that it means that this particular edition has been so improved as compared with preceding ones; yet I turn to the seventh edition published in 1811 and find the same paragraph word for word."

Evidently he had copied, I should say, this portion of the preface from the preface to the seventh edition if not from an earlier edition than the seventh.

It is conceivable that the mere fact that he had used the same language would not be at all inconsistent with the statement that he makes that he had in fact enlarged 5102 it in each case. I suppose a comparison of the other books will be necessary to settle that point as to whether the editions had been enlarged respectively.

As to whether I have any reason to doubt the correctness of the statement in the Navigator found at 4483 of the record (Abst., 1687), "The Illinois is a fine navigable river, interlocking by a portage of four miles with the Chicagow, a short river which empties into Lake Michigan, through which channel the great route of the fur and peltry trade is carried on between St. Louis and Michilimackinack, and the other northern lakes," which appeared in the 1811 edition page 168, 5103 I would say I would be inclined to question whether, as he evidently means here that that was the chief or principal or only route by which that trade was carried on. Also the statement as to four miles interpretation or elabora-

tion. And, as to whether it was one of the routes, I would answer the Illinois is a fine navigable river; of course is true, speaking of the Illinois generally. So far as the portion that comes within four miles of Chicago is concerned, I should say that that is reasonably open to question and interpretation. I have no reason to doubt that trade was carried on between Lake Michigan and the Mississippi river by way of the Illinois route in general.

As to whether I would include as a part of that river route the Desplaines, I would say I would include it to such an extent as I have tried to indicate on my direct.

As to whether I would say that it was the great route of the fur and peltry trade between St. Louis and Michillimacinac, the principal route, at the period there spoken of or the period of which he was writing at the time of the publication of this book I would say I presume there were two important routes at that time; one was by way of Prairie du Chien and the other was by way of the Illinois river and Chicago.

5104 Stoddard in his sketches of Louisiana Historical and Descriptive, published in 1812, states that the Ouisconsing was one of the easterly branches of the Mississippi; "but as it is the great thoroughfare of trade between Canada and Louisiana, it is necessary to take some notice of it."

There is further discussion of the route, and mention somewhere of the other route by way of the Illinois and Chicago. Stoddard was U. S. army officer, who dwelt in Mississippi valley for several years. This volume is considered in general as worthy of attention and respect. Do not mean to say it is not properly subject to criticism. There is a statement which squarely contradicts that of Cramer in the Navigator.

5105 I continue reading from Stoddard's Louisiana Historical & Descriptive, 1812, page 368:

"Its confluence with that river is about six hundred miles above the mouth of the Missouri, and in north latitude forty-two degrees, forty minutes. About one hundred and seventy-five miles from its mouth is the portage between it and Fox river, which is less than two miles over; and in the season of high water a good boat channel extends from one to the other. From the portage to Green Bay, an arm of Lake Michigan, is about one hundred and eighty miles, and from thence to

Michilimacknak about two hundred and thirty miles. A great proportion of the Canadian trade passes this way, especially in the dry season, as at that time the Illinois affords a much less safe navigation. The Ouisconsing forms the upper boundary line of the lands ceded to the United States by the Sacs and Foxes in 1804. Those nations at that time ceded a small tract on the right bank of the Mississippi, directly opposite the mouth of the Ouisconsing, under the expectation that a garrison and factory would be erected on it.

On the left bank of the Mississippi and three miles only above the junction just mentioned, is situated the Village of Prairie des Chiens. This village, containing about twenty dwelling houses is situated on what may be called an island, as it is separated from the main land by a ravine which is connected both with the Mississippi and Ouisconsing, and which is filled with water in the time of the freshets. About twenty other houses are scattered about the neighborhood, and the whole population may be estimated at about three hundred souls. The habitual residents cultivate the land, and in some years dispose of about eighty thousand pounds of flour to the Indians and traders, exclusive of large quantities of beef and pork. The Canadian traders annually rendesvous at this place, where they divide their goods and despatch them to their several stations; where also they receive their returns in peltries, which are sent to
5107 Canada. These circumstances draw an immense number of Indians to the village; from five to six hundred at a time. So that in the course of the summer from five to seven thousand of them visit that place. Here is a fine site for a Garrison; and a factory, with a detachment of troops, would be able in some measure to regulate the trade of the Mississippi above it, and likewise that by way of the Ouisconsing.

"The Illinois river joins the Mississippi from the northeast about eighteen miles above the mouth of the Missouri. It is navigable to where it approximates to Lake Michigan, a distance of about four hundred and sixty miles. The isthmus between the Illinois and Chicago, is low and level, and eight miles in breadth; in the season of freshets a good boat navigation exists across the portage from one to the other; and from the head

of the usual navigation on the Chicago down to Lake Michigan is four miles. Boats and their cargoes in the dry season are transported across the portage by teams, which are kept there for the purpose. Hence it is easy to perceive that a good navigable canal may be constructed at this place, and at no great expense."

5108 I think Hubbard refers to the portage house that stood about five miles up the south branch from the mouth of the Chicago river. I think it was a house used by John Crafts. As to the details of its use, I would have to look into that. Supposing it to be used by Crafts, I suppose it would be used in connection with his establishment, which he is said to have had at that point. Hubbard says Crafts was running it for Mack & Conant, acting as wholesaler

5109 for Indian traders. That is all I have at this moment. Hubbard's letter does not refer to the portage house directly, but deals with Hard Scrabble, and Craft's establishment, which he identifies as Hard Scrabble. Steward locates the portage house on the south branch where Lincoln street crosses the river, as being about 4-7/8 miles

5110 down the river. I suppose that would locate Hard Scrabble, and therefore Conant's establishment. I may be mistaken on that.

I read from the reference to the Chicago portage, a manuscript by J. F. Steward, page 7 (reading):

"The distances traveled by the traders were always estimated, often very inaccurately, which accounts for the disparities often noted. The approximate distance from the lake to the Desplaines was established very early, particularly that to the head of the portage, giving as two French land leagues (2.42 miles). Taking the United States Survey of 1822, and following the winding of the south branch of the river 4.7/8 (2 French leagues), we find, where Lincoln street now crosses the river, a house shown on the map, and near it the words, 'Portage house.' From that, always north of and along the margin of the marches and little lakes to the Desplaines, is drawn, and so named, 'Portage road.' The two lakes that head the marsh between which, no doubt,

5111 was the beaver dam mentioned by La Salle, are laid down. One of them represents Mud Lake, although no name is given. It is probable that at the locality of the 'Portage house,' had always been a stopping place."

That shows the basis of the assumption.

There was a man named Lee, who had a farm at about this point, prior to or in 1812. Indians attacked this place, and killed some of the workmen, and the place was abandoned. After reestablishment of the garrison in 1816, I assume Crafts, according to Hubbard's letter, took possession of the place and fixed it up, and made it the site of his
5112 trading establishment. Lee's occupancy was terminated by the attack of the Indians in April of 1812. Lee was killed in the Chicago massacre a few months later. Craft's establishment was absorbed by the American Fur Company, and the particular post abandoned, some years later the place was temporarily occupied, I believe, by individuals coming into this region as emigrants; and I think the Galloway family.

5113 My attention is directed to my statement, at transcript 4098 (Abst., 1548) that "Professor Alvord stated that in letter five that Ogden speaks of being on the river; I am unable to find any statement to this effect in the letter."

My attention is further directed to Ogden's letters, page 48, the paragraph beginning "The new emigrants," and so forth, and the third sentence "However, I have reason to believe, if the fire was kept out, that these savannas would grow up and timber again, for in several places I observed where the fire had made such ravages, that small studdles of
5114 hickory were growing very thrifty." Page 47: "The prairies, on this river, are numerous, and many of them are very large, extending farther than the eye can reach; and some of them for sixty or seventy miles. These savannas or prairies," and so on.

I see nothing in these passages to show that Ogden was on the Illinois river. Alvord's statement was that Ogden was on the Illinois. Alvord was perhaps ignorant of the fact that one of the passages read was copied by Ogden from Harding's tour; the other from Miller's pamphlet. I sup-
5115 pose we might draw the deduction that he had been on the Illinois river. If one were to assume that Ogden was telling the truth, that his work was not plagiarism, it would be a reasonable and probable deduction that he was on the Illinois river; however, I see no specific statement to that effect. The savannas he was writing of, I presume, were along the Illinois river, but that is not directly stated, or at any rate, that the particular place where he saw the small studdles growing very thrifty was on the Illinois.

5116 This letter of Ogden's is taken from Miller and Harding together; the first part of the letter from Miller. That is where he says: "The Illinois is the largest that is peculiar to this state. It is a noble river," and so on.

5117 Aside from what I put into the record about Miller there is an estimate in 12 Sabine, page 173, under the heading of Miller, which refers to this pamphlet, from which Ogden plagiarized the first part of this letter. It says: "A small volume of much rarity but of *little use.*"

5118 As to whether the comment just referred to does or does not help us very much as to whether Ogden ever made these trips which he purports to describe, I will ask counsel if he wishes to be more specific in his question or shall I take it just as he has given it?

Whereupon counsel stated that he understood that Ogden's whole volume was describing a trip out west from the east somewhere down the Ohio river or up the Illinois, or up the Mississippi, and as he says it purports to show he came into the Illinois country at least.

The WITNESS. It is my opinion with reference to Ogden that if it can be proved, I am not yet prepared to prove conclusively that he never made any such trip, and further that if he did make such a trip he took a very strange way of describing what he saw at that time. That very statement that counsel has referred to a moment ago about the small studdles of hickory is obviously copied from Harding, and it is equally obvious that he did not copy it correctly, but

5119 that he managed to say almost the opposite of what Harding said on that particular point. I would have no confidence in the proposition that Ogden made a trip at all, although as I say, I am not prepared to prove conclusively that he did not.

As to whether writers do not sometimes make trips and then adopt the descriptions written by others of what they saw, as for example, Hutchins said he did that as to certain parts of his topographical description of Virginia, I would answer that to my mind there is an important distinction between Hutchins and Ogden on that particular point, Ogden does not say he had done so. It would be entirely a possible thing that Ogden actually made the trips but had printed descriptions from those of others, but not probable. I would like to call counsel's attention in this connection, if I may, to this point as throwing light upon whether Ogden had made

certain trips or portions of trips he claimed to have made or not. I will point out that Ogden proceeds to describe
5120 the Savannas on the Illinois, copying Harding, and then applies that description to the American bottom, which is fair evidence, though not conclusive, that he had never been at Cahokia or Kaskaskia, and had never seen the American bottom. If he had, by the wildest stretch of imagination, he could not have spoken of savannas extending 60 or 70 miles in breadth as being on the American bottom. My opinion is that if Ogden made the trip he took a strange way of describing it, and that it is extremely improbable that he ever made any such trip.

5121 Replying to the question as to whether La Source failed to use the river for lack of water, or whether I think he failed to use it because of some other reason, do not think La Source has taken trouble to state specifically why they made the last thirty leagues by land. He shows they reached Chicago on Maundy Thursday; that it rained during the last two days of their march. I would presume it may have been excess of water, if it was due at all to the stage of the water that caused them to make the thirty leagues by land. I suppose it is conceivable that they cut across the country to avoid the Indians. I am ignorant of the fact at this moment.

5122 The Miamis were on the southern end of Lake Michigan. Am not aware this would properly be considered reason for abandoning the Desplaines or Illinois, or making a journey as this, for in going down, the St. Cosme party, of which La Source was a member, had not avoided the Desplaines for this reason. In describing the up trip, he mentions the threats by the Indians, but says, in that connection: "we are a strong party and not in the humor of letting ourselves be plundered."

La Source's statement that occurs here is "We were
5123 thirty men to descend the river of the Illinois." Assuming they had the same party coming up, that would illustrate how many men he had. Have no knowledge from other sources.

5124 My attention is directed to Pattin's report referred to by me at transcript page 4156 (Abst., 1567). Pattin says it is 150 leagues from the opening of Lake Michigan to Chicago river. That does not seem clearly inaccurate. He says up the Chicago river they sailed three leagues to a

portage of a quarter of a league. The three leagues
5125 might be open to question. It is usually stated as two. Probably neither two nor three would be exactly accurate. The length of portage is subject to interpretation, because sometimes it was a quarter of a league and sometimes much longer.

Coming to the Illinois, which is the modern Desplaines and down this 130 leagues to the Mississippi; speaking generally, and not taking into account the sinuosities, I suppose that would be a reasonably accurate statement for the period to which I have assigned it. Anybody's description of the route at that time, could not vary very much from the figures, if the figures were accurate, and the describer
5126 was approximately so. I think Pattin simply copied the Logan report. He evidently had knowledge of the Logan report, and had it before him when he made this statement, otherwise it would have been as surprising as the telephone operator's remembrance of Mr. Hines' conversation, recently described in the papers.

Pattin does not include in his statement details found in Logan as to there being two in breadth, and of great depth, referring to the Straits of Michillimackinac. That does not go at all to affect my opinion that Pattin was copying the Logan report. We would expect minor differences, unless copied literally.

There is no mention in Pattin of the fort at Chicago,
5127 while there is by Logan. There are some minor differences in the language of the two statements, such as would be expected from copying any report not literally. Pattin was describing two routes from Mackinac to the Mississippi. There was therefore, no particular necessity for his describing the fort at Chicago. It may be that Pattin was aware there was no fort there. Though I do not pretend to know what he may have had in mind in omitting or including a word or detail, I believe the report is full of inaccuracies, and misstatements.

5128 In looking at transcript pages 700 to 702 (Abst., 290), I believe that has been made evident by Professor Alvord.

5129 In connection with Warden, I used the Century Dictionary, picking out such rivers as I could readily find concerning which there appeared something, both in Wardens and in the Century, and cited it as one line of evidence

that the statement of the early writers in reference to such things were often erroneous.

Upon the request of counsel, I read from the Century Dictionary as follows (reading):

"Fox or Neenah. A river in southeastern Wisconsin. It flows through Lake Winnebago, and falls into Green Bay, Lake Michigan. Length, about 250 miles.

Wisconsin river. A river in Wisconsin. It rises in Lake Vieux Desert on the border of Wisconsin and Michigan, flows south and west, and joins the Mississippi near Prairie du Chien. In its course are several cataracts, including Dalles of the Wisconsin (which see). Length about 600 miles; navigable from Portage City."

5130 My attention is directed to my statement about Winsor transcript 4181 (Abst., 1576) which begins "Winsor was not unaware of the modern name of this river," and so on, to the end of the sentence ending "I use the term in the modern sense."

Referring to transcript 354 (Abst., 165) paragraph 2, the statement beginning, "This appears in the earliest maps, Joliet and Marquette" and so on, I understand to refer to portage by the Chicago at the southwest of Lake Michigan to the Illinois, thence to the Mississippi. I suppose the route referred to by Joliet and Marquette was the one they took in their expedition, which was evidently in part at least by the Desplaines.

5131 Whereupon the witness' attention was directed to page 355 (Abst., 166) of the record where occurs the following passage by Winsor:

"James Logan, in a communication which he made in 1718 to the English Board of Trade, as running from the lake three leagues up the river, then a half league of carriage, then a mile of water, next a small carry, then two miles to the Illinois, and then one hundred and thirty leagues to the Mississippi. But descriptions varied with the seasons. It is usually called a carriage of from four to nine miles, according to the stage of the water. In dry seasons it was even farther, while in wet times it might not be more than a mile; and, indeed, when the intervening lands were 'drowned,' it was quite possible to pass in a canoe amid the sedges from Lake Michigan to the Desplaines, and so to the Illinois and to the Mississippi."

As to whether taking into consideration that passage and also the maps of Joliet and Marquette and the various later maps repeated in Hurlbut's Chicago Antiquities, I would not say that Winsor refers to a route of which the Des-
5132 plaines was a part, will say I would suppose that this will quickest get at what counsel is asking about, I do not understand that Winsor is making any statement as to how much of the Illinois route as continued by the Desplaines was in use, or in what way it was used. In a general way, he is dealing with this route from Lake Michigan to the Mississippi. I call attention to the maps in Hurlbut's Chicago Antiquities referred to by Winsor in the statement on transcript 354 (Abst., 165, 166).

I would say the drawer of Franqulin's map of 1684 did not intend to represent the passage as between the present Chicago river, and the present Desplaines, or else he was almost ludicrously uninformed as to the geography of this region. It seems reasonably evident that the portage that would be made, basing my statement on the map itself, would be from the present Chicago to some other river than the present Desplaines.

5133 The production of Lahontan's map of 1703 shows no Desplaines whatever. Obviously the portage, if made, would be from Lake Michigan, or the arm of Lake Michigan, which is here labeled Chicagou, to the Illinois river proper.

Delisle's map of 1700 shows no Desplaines river. The portage would obviously be from the river at the southwestern corner of Lake Michigan, which may be Chicago or something else, to the Illinois river proper.

Delisle's map of 1703 has no hint of the modern Desplaines. Any portage would have to be from the Chicago river to the Illinois proper.

Senex' map of 1710 shows no Chicago river. There is a rudimentary stub of a river flowing into the Illinois which may and presumably might be taken to represent the modern Desplaines.

In Delisle's map of 1718, the portage would be from the modern Chicago to the modern Desplaines.

Moll's map of 1720 shows no hint of the Desplaines
5134 river. Basing my answer on this map, would be compelled to say that the portage was from Lake Michigan or this projection of Lake Michigan toward the south, to the Illinois river, or whatever he means to indicate by this river, near whose junction with another stream is located Fort

Crevecoeur. That this Moll map in the general layout resembles Lahontan's map pretty closely was my understanding and what I sought to show on my direct examination. Basing one's answer on Popple's map of 1733, one would suppose that the portage was here and there along the way from the modern Chicago to the modern Illinois or Haukiki. It is not clear that Popple was aware of the existence of the Desplaines. This map is very inaccurate. The river further north may be the modern Chicago, and the one to the south the Calumet, if one assumes that Popple is acquainted with the geography of the country.

5135 The word Chicagou appears at the bottom of the lake, and up in Lake Michigan at the mouth of this river to which I referred, are the words "R. Chicagou," but the representation of the other river is more like probably the modern Chicago than the representation of this river is like the modern Chicago.

In Charlevoix map of 1744, it is not clear whether the portage was from the Chicago to what we may assume was the modern Desplaines, or from the Chicago to some other branch of the Kankakee river.

Bowen's map of 1752 apparently is but a copy of Charlevoix map of 1744.

D'Anville's map of 1755, the portage is presumably between the modern Chicago, and modern Desplaines or what we may take to stand for modern Desplaines.

Mitchell's map of 1755 is, I suggest, a copy of the D'Anville map of 1755, or more likely each of them copied this portion of the map from some common prior map.

5136 The same observation as to the portage applies to this as to the D'Anville map of 1755.

Carey's map of 1818 is as inaccurate as many we have gone over and shows no portage at all. If one undertakes to base an opinion upon that, he would probably assume that the portage is between the Fox river and the stream which seems to have no particular beginning or ending, but which stands with fear and trembling for the Calumet, and is named the Kickapoo. Concluding my answer, it would be extremely hazardous to infer from this statement that Winsor was pointing out anything in particular as to the use of the modern Desplaines.

5137 The passage on transcript 355 (Abst., 166), heretofore called to my attention, at transcript 5131 (Abst., 1881),

does not leave much in doubt that what Winsor had in mind was a portage between the Chicago and Illinois rivers; sometimes it would be the Desplaines; sometimes it might be to the Illinois, probably. He says: "It was usually called a carriage of from four to nine miles," which is simply saying here what the statements or descriptions are. I do not understand that he himself stated that as his own conclusion. "In dry seasons it was even farther, while in wet times it might not be more than a mile."

5138 I would presume that that may be Winsor's own conclusion.

I suppose the grain spoken of in Woodruff's History, pages 607-608, transcript 4186 (Abst., 1578), as going down the Kankakee, and up the Desplaines was shipped from some

5139 point on the Kankakee. It was a short distance up the Kankakee from the junction with the Desplaines. It was across a portion of a county.

The stage road spoken of by Woodruff in his article 40 years ago referred to by me at transcript 4186 and 4187, was a route from Chicago to Ottawa, and Woodruff says it went by way of Plainfield in the beginning, which is on the DuPage river, but that by 1838 or 1839 was changed so as to go from Ottawa to Chicago, directly up the west side of the river; that is the west side of the Desplaines, leaving Plainfield out in the cold.

5140 This grain was said to have been shipped in 1834. I assume no responsibility as to the fact whether it was shipped or not. At the time Woodruff says the grain was shipped, the stage route was across country quite a little distance from the Desplaines.

5141 If the grain was shipped, and if Woodruff states it was shipped, if it went up the Desplaines river when

5142 the stage route went through Plainfield, the Desplaines would be from nothing to several miles from said route. Plainfield is on the DuPage river, approximately due west of Lockport. Without measuring upon the map, I would suppose it was a township and a half or in the neighborhood of nine miles west of Lockport, and near the Desplaines. The ultimate destination of the stage route was Ottawa. If the stage route went down the DuPage, it would come to the point on the Desplaines where the shipment of grain from the mouth of the Kankakee upward would strike the route. If the stage route went in some other direction, it would not.

I understand the point of shipment of the grain was
5143 some little distance up the Kankakee, from its mouth or junction with the Desplaines, being in Custer Township in Will County, or from the mouth of the Kankakee and Desplaines approximately diagonally across one township.

In further explanation of my proposition, did not suppose grain was to be shipped by the stage route or that it was unreasonable to presume it was not shipped by stage route. My proposition was that if they were in the habit of shipping grain down the Kankakee, and up the Desplaines to Chicago in heavy loads, such as Woodruff indicates, it would be exceedingly strange that they would ship nothing else along the Desplaines to and from Chicago, or that
5144 Woodruff would speak in his lecture in the terms as he did of the significance, and the change in condition and so forth from the opening of the canal. The statement in Woodruff's history is "As early as 1834 the products of the farm were boated down the Kankakee to the Desplaines and up the latter river to Chicago." And then goes on to give a specific instance.

As to whether there is any inconsistency between that statement and the fact that there was a stage route over through Plainfield and down through Ottawa to Chicago, I would say the stage route was changed to go straight down the bank of the Desplaines according to Woodruff's lecture, and still the opening of the canal produced a revolution in the relations of Joliet to Chicago. That was the point I had in mind and to which I undertook to call attention.

As to whether there is any inconsistency in my judg-
5145 ment between the statement of Woodruff and the fact that there was a stage as described, I would say I think I have pointed out where it seems to me the improbability consists.

Q. I mean the mere fact that there was a stage route would not of itself be inconsistent with the fact that these people over on the Kankakee river somewhere might have undertaken to ship products to Chicago by water?

A. But counsel seems to overlook the fact that I did not make that the substance of my argument on this particular point.

Q. Supposing you did not. I am asking you about this particular point.

A. They might use the stage route and they might also

use the river if the river was capable of use. We would hardly expect them to ship grain up the DuPage river to Chicago, if that was counsel's proposition; but that was not my proposition at all, as I have pointed out.

Q. Do you find any inconsistency between Woodruff's statement found at transcript pages 4186 and 4187 (Abst., 1578), "that hitherto goods had been transported from Chicago chiefly by ox teams drawing the old Pennsylvania canvas covered wagons," and the statement in Woodruff's history about the transportation of this grain and so on up the Desplaines river?

5146 Objection; incompetent, irrelevant and immaterial.

A. As pointed out in my direct, it seems to me the account in Woodruff's life, to which reference is had in this question, is rendered improbable by the account in Woodruff's lecture on Joliet and Will county, Forty Years Ago.

Motion to strike out, as not responsive.

It is not impossible, of course, that the thing might

5147 have been attempted as stated in Woodruff, page 607.

Q. Do you think it impossible that a boat carrying a tonnage described by Woodruff could have used the Desplaines in the spring time, say, or in time of high water?

Objection; incompetent, irrelevant and immaterial.

A. The Desplaines may well have been deep enough in time of high water for a boat, such as one may presume this statement had in contemplation, to have floated on it. It would doubtless not be impossible, assuming the water were high enough. I think it clearly improbable that this operation was carried out. The statement is "As early as 1834 the products of the farm were boated down the Kankakee to the Desplaines and up the latter river to Chicago." A reasonable interpretation of that, makes it a general statement, for when he points out the specific instance, he makes it evident that at that time they did not go

5148 up to Chicago, but were stranded around Treat's Island.

Therefore, the first statement does not refer to the specific affair described immediately following. Do not believe they were in the habit of boating farm products in such loads as described up the Desplaines to Chicago in that period. They may have boated them. It is not impossible. They may have undertaken to take a boat and been swamped, at Treat's Island, as the specific account makes evident on this occasion they were.

To make a correction, this grain was shipped from Sugar Creek, a tributary of the Iroquois, instead of Custer
5149 Township. It is perhaps thirty-one miles from the mouth of the Iroquois to the mouth of the Kankakee.

Referring to the map entitled "Amerique Septentrionale Devisee en Principal Parties," being number 9 of Chicago Historical Collections, would not care to base an answer on my general knowledge of the cartography of the country.

Carey's map of 1818 was more incorrect in some respects than many of these maps of one hundred years or more prior to that date. I think the man who finally has been responsible for the map is Hubert Jaillot.

5150 Winsor's Narrative & Critical History shows that Jaillott was Royal Geographer of France in 1736. There were several Sansons. The map does not state which of the Sansons this reproduction by Jaillott is based upon. The cataloguer has located the date of the map as 1692. I would not undertake to fix the date of the map without an opportunity to study it.

Winsor, Volume 5, page 79, of the Narrative & Critical History, states that the plates and maps of Nicholas Sanson, who died in 1667, were in possession of Jaillot toward the end of the century, who published in Paris in 1692 what passes for Sanson's Amerique Septentrionale. This I presume may be the map counsel has shown me. He says it passes for Sanson's map, but with adaptations to contemporary knowledge of American geography. This agrees with the cataloguer, or whoever has located the map by writing under Jaillott's
5151 name the date 1692.

I presume I have never taken any special course in cartographical history of this country, in the sense in which counsel puts the question. I presume I have made a study of it. Could hardly study history without studying carto-
5152 graphy. I do not krow just what is meant by special study of cartography. Can point out that it goes hand in hand with history, and having made some study of American history I could hardly divorce that from a study of cartography. There may be special courses in universities. I have not taken any such special course as counsel indicates in any special university. Most histories deal to a greater or less extent with cartography. I could hardly indicate all the histories I have used.

As to whether I have ever studied work which deal specially with cartography, I should say that Winsor's Narrative and

Critical History and the various works in the other series of Winsor deal very largely with cartography, American cartography.

As to whether I have studied them, I will say I have used them, I suppose counsel knows that without asking the question.

5153 As to whether I have studied anything else that I recall that especially treats of the cartographical history of this country, I would suggest that Phillips' Lists of Atlases and the other volumes in that work have something to say about the cartography of the American History of America. It gives a list of the maps in the Congressional Library, or something of that sort with additions.

As to whether I have used it, I would say that I have shown on the direct examination that I have used it. It is a reference work. One does not read it through any more than one reads the dictionary through.

Counsel says he gathered the impression from what I said that it was a work that a historian interested in cartography would sort of study, and that perhaps he was wrong about that.

I suppose counsel was talking about the cartography of America.

I should think if a historian was very much interested in the subject he would have occasion to use Phillips.

As to whether I have become familiar with most of the maps mentioned in Phillips' List, that is the maps of North America themselves, I would say I have just indicated in

5154 what way I have used Phillips. He has a great long list there of maps of North America, of all the maps in the Library of Congress up to the time the work was prepared, which was a few years ago; also of all the atlases in the Library of Congress. There was quite a considerable number of these maps. Some of the maps I am familiar with and some I am not.

As to whether I am familiar with any of the early maps of this country except those that I have referred to in my direct examination, I would say I presume I am. I have read through, I think, all of the volumes in Winsor's series, the Westward Movement, Carter to Frontenac, and the other volumes in the series. I have made very considerable use of Winsor's Narrative and Critical History. As I pointed out in answer to one of the questions the other day, I shall not undertake to tell counsel all the contents of these various

volumes. I do not pretend to carry these things in mind and I do not think any reasonable individual does pretend or attempt to.

These maps to which I have referred on my direct
5155 examination, some of them I had seen and some of them I presume I had not. I am unable to answer definitely from memory.

When I made that answer I assumed that you were about to state, before I became interested in this case.

About this Sanson map that I have before me I might perhaps answer by reference to my notes. I am not clear whether I could or not. I will say in a general way that I think I had gone through all of the maps in the Chicago Historical Society Collection, that seemed to me to have any bearing on early Chicago history. In that connection I will call counsel's attention to a few notes if I can readily turn to them
5156 at this moment. I will say for the record that in connection with the work I was doing on the early history of Chicago I undertook to go through all of the maps in the Chicago Historical Society Collection that seemed to me to give promise of throwing any light upon the early history of Chicago. That I have a considerable number of notes which I have taken on those maps, as I recall it something like a score or so in number; and that I suppose at this moment that since I began my study of this case I abstracted those notes from their proper place in my index and have evidently failed to return them, for at this moment I am unable to turn to them.

I will call attention merely then in this connection to two that I happen to have noticed in this way; one is a reference to a treatise on the maps of Early Chicago in Hurlbut's Chicago Antiquities. Those maps I believe we were going through yesterday. And another is a reference to a particular map in Blanchard's History. At the present time until I, or unless I should happen to locate the notes, I would let the answer rest at that point. As to whether I have ever
5157 delivered any lectures on the cartographical history of this country, or any part of it, I will call counsel's attention to the fact that teachers of history use the term "lectures" in a way that may not be recognized outside of a class room. To say what I have done in the way of teaching cartographical history, I would say that I have been teaching history at the Lewis Institute for three years, and as I have indicated, prior to that one year on half time, that is

to say, teaching half the regular work of a full instructor at the University of Chicago. In connection with teaching history, as with the study of it, one necessarily makes use of maps and undertakes to lead his students to make use of them. In that connection I have handled the subject of cartography.

Am not in the habit of giving at Lewis Institute what McLaughlin would be likely to denominate a lecture on history, but for convenience we use that term there. That is to say, that when the instructor gives a talk to the class, which may be more or less formal, and occupy a portion or all of an hour, we call it a lecture, and in that connection naturally handle geography.

Have never written any treatise on cartography that I am aware of. I have written in my own work.

Have not made any great study of this Sanson map, and do not care to undertake to state what the sources of the map are.

Have called attention to Winsor's remark as to Jaillot's obligation to Sanson, which is evident from the title of the map itself. I introduced it not to show Jaillot's knowledge but rather lack of knowledge of certain things, and that the term Chucagua was applied as indicated on the map.

5159 As to whether I would not say from my general knowledge of history and especially of cartography that the map of the southern portion of this country was based on Spanish sources, I would say I have just indicated that I would prefer to study the map before I undergo a detailed examination upon it.

As to whether I made investigation to find out the source from which the term "Chucagua" on that map was derived, I will say I have shown on my direct examination and on my cross-examination that I did not make an extensive study of this map, and that it was not pertinent to my purpose to do so.

As to whether it is my understanding that this river down here, the river called the Chucagua was meant by the map maker to be the Chicago river as he understood it to be located, I would say that this particular map maker did not understand the location of the modern Chicago river, if indeed he knew there was such a river. I called attention to the name of the river because of its evident similarity to what

has come to be the modern name Chicago, which has
5160 been variously spelled at various times by various individuals who have used the term. I would suppose that this river is intended to stand for the modern Mississippi. I do not know what name DeSoto used.

My attention is directed to volume 2, page 450, of Pierre Richelet's translation, the full title being "Histore De La Conquette De La Floride ou Relation de ce qui S'est passe dans la Decouverte de ce Pais per Ferdinand De Soto; Composee en Espagnol par L'Inca Garcillasso De La Vega,
5161 & traduite en Francois. Par Sr. Pierre Richelet," published in 1731. The work is in French. Glancing at the passage counsel indicates, I presume it states that DeSoto was buried in the Chucagua river. I note on page 450 the sentence which concludes, "And to give for him a tomb, the Chucagua."

I understand DeSoto was buried in the Mississippi, and I suppose it will satisfy counsel if I say it refers to the Mississippi river.

I am not a student of Indian languages and dialects, except incidentally in connection with one's study of American history.

5162 Q. It might very well be, might it not, that Indian names spelled with considerable similarity might differ very materially in their meanings, might it not?

Objection; incompetent, immaterial and irrelevant.

5164 A. Would say that each may spell the Indian name as he pleases, at least until there has come to be an established custom or agreement as to how it shall be spelled. Indian sounds often times have no exact equivalent in English, French or Spanish, as the case may be, and if they have, the white man often times misinterprets and only approximates or thinks he approximates the Indian sounds. I believe there are something like forty spellings in all that some industrious individual has assembled for the word "Chi-
cago." I have an impression of the Indian word "Chi-
5165 kakas," appearing on one of the maps. I do not remember which one. The name was located somewhere in the region of the modern Tennessee. If that impression is correct, I suppose it may have been the equivalent of the modern Chickasaw.

Whereupon counsel for complainant called the attention of the witness to a map entitled "Facsimile of the Auto-

graph Map of the Mississippi or Conception River drawn by Father Marquette at the time of His Voyage, from the original preserved at St. Mary's College, Montreal," of 1673, and directed the witness's attention to statements at pages 192 and 193, proceedings of Wisconsin Historical Society, meeting of October 18, 1906, Madison, Wisconsin, 1907, quotation being from an article by Louise Phelps Kellogg,
5166 Ph. D. entitled "Marquette's Authentic Map. Possibly Identified";

"Summing up the evidence already presented, we arrive at the following conclusions:

First, that the holograph map of Marquette in the College of St. Mary, in Montreal, was the one made in preparation for the voyage, and has no value in showing the results of the discovery of 1673.

Secondly, that the map in Harvard University Library known as 'Parkman No. 5,' is a copy of the propotype of the one published by Thevenot in 1681 as embodying the results of the expedition of Joliet and Marquette.

Thirdly that the original of 'Parkman No. 5' is an authentic work of the explorers; and instead of being 'crude and careless,' is exceptionally accurate in delineation of the region explored, and entitled to high rank among the early maps of the Great west.

Finally, that while the authorship of the original, of which 'Parkman No. 5' is a copy, cannot positively be asserted, indications are sufficient to warrant the supposition that this was a genuine map of Marquette, prepared by him to embody the results of his voyage of exploration—possibly intended to accompany his official report to the Jesuit authorities in France, and as
5167 such one of the two first maps ever drawn of the Mississippi River and its tributaries."

Whereupon witness asked for the reading of the question, which was thereupon read as follows:

Q. It is my understanding that that map was prepared by Joliet and Marquette prior to their exploring expedition, is that right?

A. I interpret it to be Miss Kellogg's conclusion in reference to the matter.

As to whether I am familiar with that work, I will say I think I have looked over this article. I have not in mind all of its conclusions or any considerable part of them at

this time except as I now have it before me. I have seen the article before, I am sure. I suppose Miss Kellogg would be a better authority on that point that I would be at the present time. The map itself does not show what is apparently
5168 a continuous waterway from Lake Michigan down to the river. It seems to show a slight break there up near Lake Michigan.

Whereupon the attention of the witness was directed to the map entitled "Reduced Facsimile of Parkman No. 5," opposite page 184, proceedings of State Historical Society of Wisconsin, heretofore mentioned. Without assuming any responsibility as to this map, I think it indicates a portage between the modern Desplaines and the modern Chicago river. I consider it an incorrect map. Without stopping to look up its history, I believe it is generally so considered by historians. It shows the return of Joliet and Marquette on this ex-
5169 pedition by quite a different route than we understand from the narrative, and than we have agreed to in our testimony in this case.

Winsor's Narrative and Critical History has this to say about it (page 220): "Parkman has a copy of it and calls it so crude and careless, and based on information so inexact that it is of little interest." My remarks are primarily based on the fact that the map shows a route extending from the Mississippi to the Illinois, designated as "chemin de retour."

The witness then read as requested by counsel for complainant from pages 185 and 186 of the Kellogg article heretofore cited:

> "There are, however, reasons for differing from this opinion. Parkman's condemnation of the map would seem to be based upon two lines indicating trails—one following the general course of the Fox-Wisconsin route, and designated 'chemin de l'allee' (outward route); the
> 5170 other, striking across country to Lake Michigan from a point on the Mississippi between Rock and Des Moines rivers, and labelled 'chemin de retour' (return route). Parkman assumed that these trails were intended to indicate the outward and return routes of Joliet and Marquette. If so, they are manifestly incorrect; but there is nothing on the chart itself to indicate that such was the intention. Rather are they meant to locate two great Indian trails which from time immemorial have followed those very routes. The outward trail follows the much used Fox-Wisconsin water course, necessarily crossing

it several times; but by no stretch of the imagination could this be intended to indicate the course of travellers by water. The return route follows an ancient trail from the Peoria village near the Des Moines to those of the Kaskaskia on the Illinois. This trail was later abandoned for that known as the 'Old Sauk' running somewhat farther north. 'Chemin' was the usual French term for an Indian trail."

So far as I know, Miss Kellogg's is the most recent
5171 publication on the subject. I do not know how it has been received by historians, aside from this observation in this case.

Joliet's map shows a portage or the word portage written underneath what one might presume was intended to stand for what we would call the south branch of the Chicago river. It shows river Devine or L'Outrelaize, a large stream comparable with the Ohio, or some such stream as that, the upper portion of the Mississippi, which is continued by certain branches or tributaries of much smaller size, and these, or one of them, at any rate come somewhat close to the large branch to which the term portage is applied. One of these branches runs up on the map, and almost touches the continuation of that branch of what we take to be the south branch of the Chicago river. That stream does not, in fact exist, however, according to my understanding of the matter.

5172 One might suppose that this stream, which flows into the south branch, if it is the south branch, was intended for the modern Fox or modern Desplaines. I suppose the fact is, Joliet, having simply passed through the country, drew this map from memory, and had never been up that stream, which he here represents.

In reference to Joliet and Marquette, it is my opinion they made some such portage as this. The map would be fortified by the narrative of the journey. The map alone would simply show that Joliet's representation of the water routes in this region was very incorrect, but that he meant to indicate
5173 a portage as I have undertaken to describe is indicated on the map. The approximate date of these three maps is about 1673.

I see nothing to indicate that Sanson used Marquette's or Joliet's accounts in preparing his map.

5175 Whereupon counsel for complainant directed the attention of the witness to the map referred to at transcript 99 (Abst., 42), as the Hennepin map, which is found in

"Descriptione De La Lousiane," Paris, 1608, stating that it showed a large stream running down from the southeast corner of the lake designated Lac Illinese; another stream approaching from or arising near that large stream, running down from the southeast corner, and flowing in a westerly direction to the Mississippi, and the word portage partly on one side and partly on the other of the stream, running from the southeast corner of Lake Michigan and underneath the stream flowing to the west.

5176 The WITNESS. Without stopping to verify it, I would suppose this is the original Hennepin map of 1683. Evidently this map is from the older plat, and that some additions and changes have been made in it.

Whereupon counsel for complainant directed the attention of the witness to another Hennepin map referred to at transcript page 100 (Abst., 42), and found opposite page 22 of Thwaites edition of Hennepin's A New Discovery of a Vast Country in America, stating that it differed from the other map, showed a stream running from the southerly part or southwesterly part of Lake Michigan, and another stream rising near it, and flowing to the west, connecting with the Illinois, or something that might represent the Kankakee.

5177 The WITNESS. I presume it might. It shows a portage between the two rivers that counsel has just indicated. The Illinois river is indicated as having three tributary streams; the middle one, I suppose counsel referred to as the modern Kankakee. From the upper portion of this stream to that flowing into Lake Michigan, at the southern end is represented a portage, the word "portage" written at that place.

5178 I think it equally probable that the middle one of the three streams was intended for the Kankakee.

My attention is directed to a map, entitled "La Amerique Septentrionale," etc., by G. Delisle, dated 1700.

5179 The Fox-Wisconsin is represented as one continuous stream. I see no portages represented on the map in this portion in which we are interested. I understand the cataloguer has fixed the date of the Chicago Historical Society Collections map No. 16 (Sanson-Jaillot) as 1719, as indicated by lead pencil notation. I made no effort to fix it, one

5180 way or another. This map has approximately the same title as the Sanson map, No. 9, of the Chicago Historical Society Collection, recently under discussion, therefore my

inference from the title as to the date of them may not prove to be valid.

Nicholas Sanson, whose plates were in the possession of Paillot, died in 1667. This map Amerique Septentrionale is dated 1692, Winsor, volume 5, page 79, who says it was reissued at Amsterdam not long after and that the plate was long in use in Amsterdam, and that he had noticed reissues as late as 1755 by Ottens.

I presume it would require some time to locate abso-
5181 lutely this particular copy of the map. It might be by the use of Phillips I can do it. The index of Phillips under the name Sanson, fills approximately a column and a half. It would doubtless require considerable time to settle this matter. I am prepared to undertake it if counsel wishes me to.

Whereupon witness was directed to locate it.

The WITNESS (continuing): I would suggest that if counsel has located the date it might save time to give me the reference. Whereupon counsel stated the only thing he had in mind was what he had shown in Phillips.

The WITNESS (continuing): I would say in reference to this question that a map of this title was first issued in 1692 and 1696, and appears to have been reissued at different times in the years after this period. I think it would be impossible to say at what time this particular copy was put out. I
5182 have not looked through all the column of maps listed under this name in Phillips but I presume that this would be the result of such an investigation.

Winsor shows in his reference to this map that various editions were made to it to bring it down to the contemporary knowledge at the various times that it was reissued.

My attention is directed to Lahonton's map, appearing in Thwaites' edition of Lahonton's New Voyages to North America, opposite page 146. The words "Land carriage of Chekakou," appear on that map to the north of the Illinois river, north of Fort Crevecoeur, and running in general east and west from that point over toward the southwestern point of Lake Michigan and then back toward the west to a point which may perhaps be taken to indicate the central part of the State of Illinois from east to west.

5183 The southern end of Lake Michigan is represented as terminating in a projection similar to a sharp point which

might perhaps be described as a bay. In my mind "Land carriage of Chekakou" applies to the space between the southern end of Lake Michigan and the Illinois river.

5184 The word "of" is due west of the southern point of Lake Michigan as represented here, and due northwest of the space between that point and the Illinois river. Of course, a part of the letter "F" is the west part of that open space.

My attention is directed to Delisle's map of 1703, being No. 12, Chicago Historical Society Collection. It shows the word "portage" at a point, which I would take to have been intended to indicate the Fox-Wisconsin portage. It shows the word "portage" on a river south of Lake Erie, designated as Wabash, and otherwise as Ohio or Belle Riviere. I take it to mean the modern Ohio, and not the Wabash. There is a portage at that point apparently from a river which flows into the southwestern end of Lake Erie, over to the Ohio. The portage is written on the southeast side of the Ohio river.

5185 There is a dotted line running from Lake Michigan or a point on the Chicago river in a general westerly direction to and along the river la Roche, and then continuing on up the Mississippi. That dotted line is scattered pretty generally over the map, however. It is not intended to show a portage. The Fox-Wisconsin waterway appears to be represented continuously.

My attention is directed to DeFer's map of 1705, from

5186 the University of Illinois collection. Waiving the question as to the accuracy of this map I presume the word portage and the two dotted lines form the Fox to the Wisconsin rivers represent what we know as the Fox-Wisconsin portage. It shows a portage extending from what may be regarded as a bay of Lake Michigan across to a river, which is the northerly of two streams, which come together and form a continuous stream, which at a lower point on the map is designated Riviere Divine ou Illinoise et de Segnelay. It shows a portage from a stream, the southerly one of two streams which come together, and as one continuous stream empty into the southwest corner of Lake Erie, extending from that point to the river designated as the "Oubache river par la quelle en peut descentres dan selle de Mississippi."

5187 These portages are the three indicated in the same way as the two rows of dotted lines, and the word portage opposite them.

My attention is next directed to Carte particuliere, which is

substantially the same as Lahontan's map. It shows a portage of the same sort, but different wording. The point indicated is the same. This map is identified as being
5188 taken from Chatelain's Atlas. It follows page 82 in that atlas.

I would judge it is based on Delisle's map of 1703, being the map No. 12 of the Chicago Historical Society Collections; doubtless as far as the region around Lake Michigan is concerned. Have not examined the whole map.

My attention has been directed to a series of maps appearing in Chatelain's Atlas between pages 100 and 101. Do
5189 not recall having referred to it heretofore. The cataloguer has dated this map 1725, with a question mark. If that is correct, then map entitled "Mappa Geographica
5190 Retionem Mexicanam et Floridain," dated 1719 could not be based on it. The maps appear to have a common origin. There seems to be some slight differences between the two. I observed that Checagou, a place, appears on the map in the atlas and does not appear on the other map. Checagou, a place indication approximately at the site of the modern Chicago, I take it.

My attention is now directed to a map in Chatelain's Atlas, immediately preceding page 91. I have not the
5191 Von Keulen map before me. Speaking from memory the two maps are similar, so far as the portion around Lake Michigan is concerned, I judge they came from the same source.

5193 Winsor says the map was published at Amsterdam in 1720. I believe I called attention in the course of my testimony in reference to the Chatelain Atlas to the fact it must have been published earlier than 1720. The map shows a portage somewhere on the river St. Croix, near Detroit; also another portage in the same river. Am not clear what the portages are supposed to connect. It shows a portage between the Fox-Wisconsin rivers. Shows none at the modern Chicago. It shows one between a river that is labelled Riviere de Checagou, and the Wabash river, which is as we would
5194 say to-day the Ohio evidently. Shows a portage of the Miamias, which I take is between the source of the St. Joseph river, using the modern name, and the eastern end of Lake Erie; also a portage of St. Jerome, which I suppose is between the river flowing into the eastern end of Lake Erie and a branch of the river here called the Wabash, which we to-day call the Ohio. There is a river below labelled Riviere

d' Ohio autrement apelee Acansea Sipi, meaning River of the Ohio, otherwise called Arkansas.

5195 This map is exceedingly inaccurate in many respects. I offer that to explain the statements I have been making about rivers and names.

The Delisle map, being No. 15, Chicago Historical Society Collection, dated June, 1718, shows the Fox-Wisconsin, the St. Joseph-Miami portages; it does not show the Chicago-Desplaines portage. Designates what we now know as the Desplaines by the name Chicagou. It shows a river going into the lake with two forks, which, considering the date of the map, we may agree shows the Chicago river fairly well.

As to whether that map was made during the period when there was very little trade going through this country, I

5196 would say the map was made in 1718. I believe I have indicated what my understanding was of the matter. Referring to Homann's map, the title of which indicates that it was based in part at least upon Hennepin, I will say I believe I did not qualify as an expert upon the Latin language, but I would not so read the title, basing my answer on a hasty sight translation of it. To give my translation I would judge that the title indicates that it was a map of the region called Louisiana which was discovered by Father Hennepin. It indicates what purports to be the route of Father Hennepin, I do not understand that the indication is correct.

5197 There is a good deal of similarity between this map and Delisle's map of 1718 and 1703. I presume the maker of the Homan map drew on Delisle to a considerable extent. Homan's map shows two routes for Hennepin between Lake Michigan and the Mississippi. This dotted line on the 1703 Delisle map seems to correspond with the southern one of these two lines on the Homan map, though the dotted lines run pretty generally all over the map. Evidently Hennepin had not traveled everywhere the dotted line goes. Into Connecticut, for example.

5198 Bellin's map of 1744 indicates a portage approximately at the point of the Chicago-Desplaines portage. The words R. des Illinoise appear north above the line which indicates the northerly fork of the two streams which come together and proceed to the edge of the map, as it is depicted, and the name appears about half way on each side of the fork. I take it that the name River des Illinoise is immediately above the fork which we might take to be the junction of the Kankakee and Desplaines rivers. The south-

erly river of that fork is designated River de Theakiki, and the portage is indicated by a dotted line from the northwest of the Chicago river and the words Portage aux Chenes.

D'Anville's map of 1746, No. 20 of the Chicago His-
5199 torical Society Collection shows no portages.

My attention is directed to Vaugondy's map, which bears a catologuer's date of 1753, and the words Aves Privilege at the bottom of the map. It shows two rivers coming together, and continuing down to the southwest, and the main stream is labelled Riviere des Illinoise, and the northerly one of those two rivers is also labelled Riviere des Illinoise, and the forks where they come together is designated La-Forche, and the southerly of the two rivers is designated Teakiki. The portage is indicated from what apparently represents the north branch of the present Chicago river, to the more northerly of these two streams which come together at a place indicated as La Forche by a dotted line extending from the north branch to that northerly river
5200 and the words Portage Aux Chesene. The representation on this map is the same as the D'Anville map of 1746, C. H. S. No. 20, or else they are both copies in common of some other map. It shows the St. Joseph-Kankakee portage, or a portage at what is known as the St. Joseph and Kankakee rivers today.

I perceive no portages on the LaRoche map No. 26 of the Chicago Historical Society Collection. It indicates a river called the Chicago, about where the modern Desplaines would be. Do not mean that it is correctly located. I suppose we may take it to represent the modern Desplaines.

Bellin's map of 1755 entitled Partie Occidentale De La Nonvelle France ou Canada Par Mr. Bellin Ingenieur de la Marine 1755, being No. 25 N of the Chicago Historical Society Collection of maps, shows two rivers coming together and forming the Illinois, indicating the place of junction as
5201 LaForche. The northerly of these two rivers is labelled R. des Illinois, and the southern R. des Theakiki. It indicates a portage from the northerly of these two rivers, which come together, to what apparently represents the north branch of the present Chicago river by a dotted line, and the words Portage des Chenes. It indicates other portages as follows: Fox-Wisconsin, Kankakee and St. Joseph, St. Joseph and the Wabash; one between the Miami (modern Maumee) and the river flowing south into the Ohio; one between

Lake Erie and another river flowing south into the Ohio; one between Lake Erie about the middle point, and still another river flowing south into the Ohio.

As to the region around the lower end of Lake Michigan, this map seems to be a copy of the two maps which have been described or rather to be based on the same source as those two maps, the first one being Bellin's map of 1744 and the second the Vaugondy map of 1753, according to the cataloguer, and the third Bellin's map of 1755.

This is a reproduction of his own earlier map.

5202 One covers a larger country than the other does. The map of 1744 shows only a part of the country appearing in the map of 1755. I see no particular difference so far as the district is represented. The scale of the maps is different.

5203 My attention is now directed to map of the "Theatre of the present war in America drawn according to the new English maps of L. Dennis, geographer," etc., by his very humble servant Bassett in 1779, one of the university of Illinois collections. This indicates a river flowing from a point along the southwesterly shore of Lake Michigan with the words opposite written in the portion of the

5204 map representing Lake Michigan R. et Post Chicagou, and underneath that river is the word portage. It then indicates a river called R. des Illinois, running in generally a northerly and southerly direction past this point perhaps about one-sixth of an inch from the western end of the Chicago river, as indicated on the map. It also shows a river called the Theakiki running in a westerly direction or slightly southwesterly direction below the Illinois. The map shows parts of these two rivers, the Theakiki and the Illinois.

My attention is directed to Moll's map of 1720 which appears to be based on Lahontan's, so far as the region

5205 around the southern end of Lake Michigan is concerned.

Q. As to that region how does it compare with these later French maps to which your attention has just been directed?

Objection; incompetent, irrelevant and immaterial.

A. As to the region around the southern end of Lake Michigan, the Illinois river, and so on, I would say that

5206 neither of the maps are accurate. There might be an honest difference of opinion as to whether Moll's map, or Bellin's map, more nearly approximate the correct representation of the general geographical features of the coun-

try. Moll's map shows a very small stream for Chicago river; Bellin's map shows a considerably longer stream, and neither one of them is accurate.

As to the Illinois river, up to the farthest point north, which the Illinois river reaches on the Moll map, am inclined to think it is more accurate than the representation on Bellin's map. Moll, however, shows no Desplaines river, while the Bellin map shows one which apparently corresponds with the Desplaines. Bellin represents the Kankakee and Illinois as flowing in an almost straight line from the source of Kankakee to Mississippi river. Moll incorrectly represents the Kankakee as flowing northwesterly, and represents the Illinois from the point where its northernmost point is reached, flowing in a southwesterly direction. On the whole, think it is more accurate in that respect than Bellin's.

5207 The river St. Joseph is shown with more correctness on the Bellin map. Green Bay is shown with approximately greater correctness on the Bellin map than on the Moll map. Moll represents Lake Michigan as trending to the northwest, and the southeast; Bellin as trending from northeast to southwest. References to modern map shows that neither is correct.

5208 Moll's map indicates the L. Carriage to the Illinese, which I take to apply to the space between the Illinois, at its northernmost point and Lake Michigan, and I believe these words appear at about the same position on that map as they did on Lahontan's. Have not Lahontan's map before me.

At the beginning of Popple's Atlas is a small scale map of a large portion of North America, the eastern half. See no portages on it at this moment. Baldwin points out from his study of this Popple map that the detailed maps are generally accurate with respect to portages.

5209 I believe he contrasts the detailed maps with those smaller general maps. Since there are no portages shown, I suppose one could hardly say it is inaccurate in that respect. Taking that more detailed map which I referred to on my direct, the east and west degrees are

5210 not indicated but the easterly line on the map runs from Lake Michigan and the westerly line, I suppose about seventeen degrees west of that. It shows a stream running between the river indicated, as the Illinois, in the lower part of the stream, and the Huakiki au Macaten R in the upper part of the stream, and a stream running out of the

southwesterly end of Lake Michigan, the connecting stream leaving the river about above the letter A in the word Huakiki. It is not entirely evident where one stream leaves the other. There is a continuous water connection evidently between them. A stream running into Lake Michigan, above mentioned, is designated R. Chicagou.

From Lake Michigan down to the Huakiki is a dotted
5211 line alongside of this water connection. The word portage appears on the western side of the dotted line, at a point where the water way between the two rivers, the Chicago and Huakiki connect with the Chicago; again below what apparently indicates a lake in the course of this waterway, and again at a point near the Huakiki river. The word "portage" occurs along this water route.

5212 See no particular point in saying that the words are on the dotted line. The dotted line runs parallel to the waterway. The word "portage" stands close to the waterway.

I believe that map was made for the British Board of Trade. People had access to the Board of Trade reports. Was issued under their patronage in 1732. The Board of Trade may have investigated trade in Illinois country, and western country to some extent. Do dot care to say they made any exhaustive or thorough investigation.

5213 Logan and Kieth sent a report to the Board of Trade. Whether or not at the request of the Board, do not know. The great period of discussion in England of the trade in the western country came about 1732. No issue was joined until the French and Indian war 30 years later. Do not know when the period began as applied to the Chicago region. As to the Ohio valley, should say about 1740 or 1750.

5214 The date usually ascribed to the signing of the treaty of Utrecht is 1713. I know something of the British claims based on this treaty. On the spur of the moment, I call attention to Winsor's Mississippi Basin, page 331. He speaks of the preposterous claims the English set up, and shows how they gradually screwed their map papers up to the pits of audacity, where they reproduced and repre-
5215 sented these preposterous claims. The British claims to this country arose at various times. About 1750 the British and French were ready to claim everything in sight in North America. That is not literally correct, of course. The French conceded something to the English as late as 1750, and the English never claimed Quebec.

Suppose Kieth and Logan's report had something to do with the trade in this region or with reference to this country. I understand, however, the British across the
5216 water paid little attention to the interior of the country until a later date. Their interest was aroused as to its interior, by the contest that arose over the upper Ohio valley. The British Board of Trade apparently reissued Logan's report and Kieth's report.

My attention is directed to the map entitled: "North America from the French of Mr. D'Anville Improved with the Back Settlements of Virginia and Course of the Ohio; Illustrated with Geographical and Historical Remarks," being No. 22 C. H. S. Collections, and bearing the notation along the bottom "May, 1755, published by Thomas Jeffery, Geographer to his Royal Highness the Prince of Wales, near Charing Cross."

5217 This map is not entirely identical with the original D'Anville of 1746, in my opinion. As to the physical features, they seem to be much the same. Mr. Beckwith has noted that the date of the D'Anville map of 1746 is incorrect, since the map shows things which could not have been known as early as that date.

(Reading): "The date of this map is not correct, in
5218 that it shows forts Dugnene Le Beouf, and Presq Isle (on French Creek and at Erie, Penna.; which were erected several years after the time when this map purports to have been issued. Probably the plate was older than these forts, and in printing a new issue the date of the old plate was not changed. January 8th, 1885. H. W. Beckwith."

That is noted in pencil on the map.

Do not understand that a student of American history is expected to carry in his mind all these detailed facts about all the maps he may have seen in the course of years of study.

5219 Do not recall that I have ever undertook to determine whether this particular detailed map counsel has produced is found in Jeffrey's Atlas or not. The map of North America from the French of D'Anville is like the D'Anville map of 1746 in that it shows no portages.

My attention is directed to Mitchell's map of 1755.
5220 There is a dotted line extending from the northerly end of Lake Michigan, that runs down through Lake Michigan, through the point indicated R. Port Chicagou, and ex-

tends parallel with and near the river indicated as River Chicagou, the main part of it above the forks, thence across to the more northerly or more westerly river, which come together at the point marked the fork, the more southerly which is designated River Theakiki; thence down along that river and along what obviously represents the Illinois river to the Mississippi. On that line is the designation "Illinois river route to the Mississippi 250 miles." The word Mississippi, and the 250 miles being along that part of the line which passes through Lake Michigan. The rest of the designation is down along the Desplaines river. The
5221 word "portage" appears to the west of the upper portion of what I would designate as the Desplaines. Where the Fox-Wisconsin rivers approach each other, is a dotted line, which may perhaps indicate a portage. The word "portage" does not appear there. There is a portage on the Wabash, probably intended to apply to the Wabash, and Miami, or Maumee river. There is another somewhat to the south. Am not certain what it applies to. There is one over toward the eastern end of Lake Erie, on the southern side, evidently between Lake Erie and the upper waters of the branch of the Ohio.

Re-direct Examination.

5222 A dotted line extends along Lake Erie to Sandusky "80 miles by account to the mouth of the Miami river." A dotted line follows the Miami river, to the place where I referred to a portage from that river. This dotted line crosses the portage, continues down the Illinois river along the Kankakee or Theakiki, to the Illinois. There are two portages from the Miami river, one to the Wabash and one to the Iroquois or Theakiki.

5223 On the map on the mouth of the Miami river is a legend "The Miami River 90M. by water."

Cross-Examination Continued.

Q. Would those things to which Mr. Scott has just directed your attention tend to indicate to your mind, Mr. Quaife, that at the time of the publication of this map there was such a route in use as that to which your attention was directed by Mr. Scott?

A. Mr. Scott directed my attention to two things; one was the indication in the lake from the mouth of the Miami river over towards Sandusky which was labeled "80 M. by account;" and to the further indication of the dotted line going down the Miami river and over to the Iroquois and thence down to the mouth of the Kankakee river.

5224 Do not know as I am prepared to explain the significance of any of these dotted lines. I see no explanation of them on the map.

5225 At the point where the word portage appears, apparently referring to a portage which counsel suggests is between the Miami river and the Iroquois river, will say I suppose it is intended to be between the Miami and Wabash rivers. Of the two portages I pointed out, the upper one, I think, is clearly between the Wabash and the source of the Miami. The lower one I should judge is between the Miami, and another branch of the Wabash.

I think these portages might be considered as evidence that the map-maker supposed there was a route that might be used. The geography of the region is a continuing feature, and the use made of the region by people varies from time to time. For illustration, the use of the Chicago portage and Illinois river route. If, as some historians say that route was not used as frequently in the first half of the

5226 eighteenth century as in prior time, that would not appear on the map. It would have to be indicated by a printed statement.

As to whether the fact that a portage was indicated on this map would have some tendency to establish the existence of the portage, would say that the geography of a region is a permanent thing. The map maker does not necessarily indicate what the use may be in any given time in that region by white men. If the word "portage" were put there, would suppose that sometime or other a portage had been made by someone; at least that the map makers thought that such was the case. In arriving at my conclusion of such a matter, would take into consideration whatever I could find that seemed pertinent to the question being weighed.

5227 Maps are valuable as throwing light on historical questions oftentimes. It would depend entirely on the circumstances of the case. Suppose I were investigating the existence and use of a route by way of the Miami and Wabash rivers, as to whether I would regard this map as throwing light on the whole consideration of the subject, I would say

I should think one's decision would have to rest largely on other evidence.

As to whether I would consider the map as pertinent in connection with that investigation, I said that I would consider anything that seemed to bear upon the subject under investigation, and that maps oftentimes are of service in connection with historical investigations. As to whether I would consider in such an investigation as suggested above that this map would be pertinent in the year 1755, I would say that the map was not conclusive evidence on the matter and might not be evidence of any value whatever as to
5228 the use of the portage in the year 1755. It would indicate that the map maker thought there was a condition there which would call for a portage, and probably would indicate that he thought at some time the portage had been used.

My attention is directed to Rocque's map. It is dated 1761, or later, and purports to deal with military events of the French and Indian war from 1754 to 1761, and is a map
5229 of the whole of North America so far as known, I take it. I see no portages. Being asked to indicate the river which I took to represent the Desplaines, I will say in my direct I stated "For the Desplaines is shown an insignificant and unnamed stream lying a considerable distance to the southwest of Chicago."

On the Illinois river, some distance to the southwest of the southern end of Lake Michigan, is a stream I undertook to describe in those terms at transcript 4190. (Abst., 1579.) Immediately above the junction of this stream with the Illinois are the words "The Fork." It is my recollection that I referred to the river flowing into the main stream from the north, just below the word "Fork," as indicating the Desplaines.

5230 My attention is directed to Bowen's map of 1763, entitled "An accurate map of North America describing and distinguishing the British, Spanish and French dominions on this great continent; according to the definitive treaty concluded at Paris, 10th, Feb., 1763," etc., Eman Bowen, geographer to His Majesty, and John Gibson, engraver. It was presumably published after February 10th, 1763. The first edition was probably produced in that year. On this map a portage is indicated between what represents
5231 apparently the Chicago river and the river designated Illinois or Chicagou river, the portage being indicated

by a dotted line, and the word "portage" between them. Would say the portage is represented as being from the upper part of this river Chicagou to the Illinois river opposite. The map also shows the Fox-Wisconsin portage in the same way.

My attention is directed to a map in the work entitled "A topographical Description of such Parts of North America as are contained in the (annexed) Map of the Middle British Colonies, in North America, by T. Pownall, M. P. Governor, etc., of his Majesty's Provinces of Massachusetts Bay and South Carolina, London, Printed for J. Almon," etc.

5232 The title page shows the date of the work to be 1776.

The region around Lake Michigan appears upon what is entitled a sketch of the remaining part of the Ohio river, and so forth, appearing in the upper left hand corner, ruled off from the rest of the map by lines. The map apparently extends as far west. It is represented over the main map, and is on a materially smaller scale than the rest of the map. The scale is about three to ten. I see nothing on the sketch to indicate the Chicago portage, nor the Miami portage. On the main map there is a portage indicated be-

5233 tween a branch of the Miami river to a branch of the Wabash. These streams are shown on the sketch.

My attention is directed to a map entitled: "A map of the Middle British Colonies in North America. First published by Mr. Lewis Evans, of Philadelphia, in 1755; and since corrected and improved, as also extended, with the addition of New England, and bordering parts of Canada; from actual surveys now lying at the Board of Trade. By T. Pownall, M. P. With a topographical description of such parts of North America as are contained in this map. Printed and published according to Act of Parliament for J. Almon in Piccadilly, London. March 25, 1776."

The sources of the map are indicated in the topo-

5234 graphical description itself, and is further indicated in the body of the text in addition to the preface.

At page 32 is a paragraph headed "Mississippi River" and purports to be based on the proof of the statement made by Gist in 1761. At page 33 is a reference to what is ordinarily designated as the country of the Illinois.

(Reading): "The triangular tract of land at the head of this great vale, and between the Mississippi, the Ohio, and Lake Erie (as that lake is vulgarly called) the Country of the Illinois is the finest spot of earth

upon the globe swelling with moderate hills, but no mountains, watered by the finest rivers, and of the most delightful climate; the soil, as appears from the woods with which it is clothed, is of the most abundant fruitfulness in vegetation. It abounds with coal, and there are multitudes of sale springs in all parts of it. There
5235 are mines of iron, copper and lead. Wild rye grows here spontaneously."

I see no indication on Hutchin's map of the Chicago portage. It shows the Wisconsin river at the upper corner of the map, but I judge not the full length of the stream. It shows "This river * * * by one portage of about
5236 three miles." A portage is represented between the Sandusky and the river flowing into the Ohio, which is labelled "Great Miami or Rocky river." That is between an upper tributary of that river and the Sandusky. A portage is pointed out between the branch of the Miami or Rocky river, which flows into the Ohio. The river which seems to represent the Desplaines is called the River Plein. On the maps we have examined up to this time, sometimes the Desplaines is not called anything. Sometimes it was not shown. When it was called anything, it was usually named either the Chicago or Illinois. The date of this map is
5237 November, 1778.

As to whether a map by Hutchins was entitled to as much consideration by historians as one by Lahontan, it would depend entirely on how the two maps were presenting any given view. Speaking generally, I would presume it would be.

Q. I had in mind that classification of maps made by explorers and maps not made by explorers. You put LaHontan, of course, in the class of explorers maps, but not Hutchins. It would perhaps be accurately enough, speaking generally, to say that Hutchins was an explorer, I presume; but treated as source material, other things being equal, Hutchins' opportunities were such as to entitle him to the same consideration, at least as LaHontan, were they not?

A. I should say that would depend entirely on whether LaHontan and Hutchins, or neither, made this particular trip in question up the Desplaines river. I would also point out that I did not put Hutchins' map in anywhere, and I have explained already what I had in mind in saying what I said, or in placing where I placed the LaHontan map.

Re-direct Examination.

5238 This map shows a portage from the St. Joseph river, to a branch of the Miami or Maumee. There is a river running into the west end or southwest end of Lake Erie, called R. Portage. It runs a trifle easterly, and a trifle to the northeast.

Cross-Examination Continued.

Its course being about midway between the Miami, and Sandusky, somewhat closer to the Sandusky toward its mouth. Its source is southwest of the western end of Lake Erie some little distance, in the neighborhood of 50 or 60 miles, I should estimate.

5239 My attention is directed to a map entitled "A particular map of the American Lakes, Rivers, and so forth by Danville." June 25, 1790, No. 23, C. H. S. Collections of maps. A notation underneath the title reads:

"N. B. There is no material alterations in this map from the original, it being a particular map designed to display the Lakes, Rivers, &c., more distant than in the general map.

The proprietor of this work would be wanting in gratitude were he not to acknowledge that the great Reputation and Merit of this work chiefly depended upon the labour of D'Anville & expence of the Duke of Orleans."

It shows a portage between the Wisconsin and Fox rivers, and between the St. Joseph and Wabash. It shows a river designated R. Chicagon, apparently representing the modern Desplaines, which river apparently forks at a point south and a little west of the end of Lake Michigan, and the easterly of the two forks runs up according to the map, very close to Lake Michigan.

5240 Think there is no connection between Lake Michigan, and this waterway, but that rather represents a branch of the River Chicagon. This is a reproduction and enlargement of the other map, so there would be room for error to creep in.

D'Anville's map of 1746 does not show any fork of the river labeled Chicagou. It shows rivers coming from the northwest, and practically direct from the south, and meeting ap-

parently above the shore of Lake Michigan, flowing into
5241 Lake Michigan, and the word Checagou written in. Comparing these two maps and considering the course of these two rivers, I do not know whether the maker of the latter map undertook to correct, or simply blundered in reproducing the D'Anville map. His only statement is he made no material alteration; that the map was designed to display the lakes and rivers more distinctly than in the general map.

I believe an arm of the Desplaines that came up toward the Chicago river, and that in times of high water was a continuous channel between the two rivers, is represented by some of the sources. I think Graham and Philips described it.

5242 Cary's map of 1805 shows the carrying place between the river which flows into the western end of Lake Superior, and the Copper Mine River, continued by the St. Croix, which flows south into the Mississippi; the carrying place between the Fox and Wisconsin; portages between the Plein and the Chicago river, the portage between the St. Joseph and the Maumee; the portage river near the western end of Lake Erie, and the word "portage" below that river.

Do not say what portage it may indicate. The portage
5243 between the Maumee and Wabash river, between the St. Mary's and Great Miami, and Glaize and the Great Miami, and a portage of four miles between Sandusky creek and Scioto river, which flows south into the Ohio, the description of which reads "Portage of four miles. Through the Sandusky and Scioto lies the most common pass from Canada to the Ohio and the Mississippi."

I see no others that appear on the map. It represents the Desplaines rising to the southwest of the mouth or all of the south branch of the Chicago, flowing some distance southeast, there joining or being joined by a small branch which comes down to the southwest from the portion of the Chicago.

My attention is directed to map No. 33 in a work entitled: "A Complete Historical Chronological, and Geographical American Atlas, being a Guide to the History of North and South America, and the West Indies; Exhibiting An Accurate Account of the Discovery, Settlement and
5244 Progress of Their Various Kingdoms, States, Provinces, &c., Together with the Wars, Celebrated Battles, and Remarkable Events, to the Year 1822. According to the Plan

of LaSage's Atlas, and Intended as a Companion of La-Voisne's Improvement of that Celebrated Work. Philadelphia: H. S. Carey and I. Lea,—Chestnut Street, 1822."

It shows only the State of Illinois. The word portage appears in space between Desplaines and Chicago rivers as indicated on map.

Turning to map of United States, at beginning of volume, under caption "Canal," I read:

> "A canal has long been in contemplation to unite the waters of Lake Michigan, with those of Illinois river. The Chicago, a river which flows into the south end of Lake Michigan, is so connected with the Plaines, one of the head waters of the Illinois, that in freshets boats pass readily from one to the other. The government of the United States has given permission to open a canal, with a grant of 100,000 acres of land, the land
> 5245 through which it will run, and 90 feet on each side of it. This canal can probably be made at less expense than any other water communication between the great lakes and the Mississippi."

The representation of the Chicago river on this map shows that the maker had no conception of what it was really like.

Map No. 5 of this volume, indicates no portage between the Chicago and Desplaines. There is one between the Fox and Wisconsin.

Whereupon counsel for government offered in evidence certain plates (For copies of said plates see Appendix, pages .....) of the government survey, stating that he had secured them from the Department of the Interior, and asked whether there would be any question as to their being plats of the government survey. Counsel for the defendant stated that counsel for the government might proceed to ask the witness any question about them and he would have the maps examined by Mr. Woerman. Whereupon counsel for the complainant directed the attention of the witness to plats of fractional township 39, north of the base line of range No. 14 east of the third principal meridian; of township 39, north of the base line range 18 east of the third principal meridian; of township 28 north of the base line range 13 east of the third principal meridian; of township 38 north of the base line range 12 east of the third principal meridian, stating that they were plats obtained from the Department of Interior, and purporting to be plats of the Government survey of the townships mentioned made in 1821 or 1822.

The WITNESS. In the plat of fractional section 39 north, range 14 east, section 30, is a representation of a house, with an arrow pointing toward it with the words "portage house." From that point are parallel dotted lines running to the west with the word "Road" out in the margin, just beyond the edge of section 30.

In the plat of township 39 north, range 13 east, what
5248 is I suppose the continuation, we find those dotted lines and the designation "portage road."

On the plat of township 28 north, range 13 east, we find a continuation of the parallel dotted lines, with the designation "portage road" to the northwest corner of the township. Then on plat of township 38 north, range 12 east, we find some more dotted lines, running up to the Desplaines river, designated "portage road," and the dotted lines end near the Desplaines, about on the line near sections one and twelve and midway between the Desplaines and the easterly line of section 12.

In reply to question of counsel for the defendant as to whether there was a certificate on the plats, stated that the plats had not yet been certified but would be, and that the counsel for the defendant would find certified copies of these plats in the recorder's office if he desired to check them up. Counsel for the government further called attention of counsel for the defendant to the notations at the bottom of the plats, which are in substance the same with only the changes in the name explaining what they are, that is, that they are plats of actual surveys.

5249 My attention is directed to a map No. 11, in a volume entitled "New American Atlas, designed principally to Illustrate the Geography of the United States of North America; in which every county in each state and territory of the union is accurately delineated, as far as at present known: The whole compiled from the latest and most authentic information. Philadelphia. Published by Anthony Finley, 1826."

The map embraces Ohio, Indiana, Illinois, and lower part of Wisconsin and Michigan apparently. It indicates by dotted lines and by the word "Portage," what I judge is a portage from a sort of a lake connecting up with the south
5250 branch of the Chicago and Desplaines rivers. It shows above that portage, parallel line running from Chicago down along side the Desplaines, and cutting across the country, not following the exact course of the Illinois, clear down

to St. Louis. Do not know whether it indicates a road or not. Have no reason to dispute it. Probably is intended to represent a road.

I presume the map is of the date of 1826, the date of publication.

5251 On the whole, I would consider it is a fairly accurate map. I am not sure I find any inaccuracies of great importance. The representation as to the Calumet is apparently somewhat different than on the modern maps. The Desplaines does not rise as far north as it should be shown. It shows it as rising up across the Wisconsin line.

Re-direct Examination.

5252 The road referred to by counsel follows the Desplaines and crosses the Illinois just below the forks. Does not touch the Illinois again until it gets to Peoria, and then departs entirely from the Illinois, goes almost due south, turning a little westerly before it reaches Edwardsville. Is not at any point near the Illinois from the time it leaves Peoria. That is, the road runs due south from Fort Clark or Peoria, and the Illinois river flows off to the southwest, then after a time to the south, but this is some distance west of
5253 the road, across a country approximately. It follows down the west side of the Desplaines river.

Cross-Examination Continued.

As to whether the fact that the surveyors who made these surveys of sections of township to which my attention has been directed found a roadway sufficiently definite to be able to survey it and delineate it on their maps, calling it the "portage road," indicated this house that my attention has been called to and called it "portage house" has any bearing in my judgment as a historian on the question of the extent of the use of the Desplaines for travel
5254 and commerce, I think it would indicate that the surveyors found such a road and such a house as they laid down on the plat; and further that they found that those names were appended to the road and the house. It would depend entirely on circumstances whether the fact that they found those things would have any weight with me in determining the extent to which the Desplaines river was used

for the stated purpose. As to whether it would have any bearing on the extent to which the Desplaines was used in my judgment I do not think it would. It would have a bearing on the question of whether they were in the habit of going along this route. The road would not exist otherwise, I should think, unless it was used at some time or other or had been used.

As to whether I would draw any inference from the fact that there was travel along this road which extended from the south branch of the Chicago river to the Desplaines river and which they called the portage road, as to the nature of the travel, that is, as to whether or not the road was
5255 used as a portage between two rivers, I would suppose that would indicate that at some time or other there had been some circumstances that had given rise to the name; that circumstances would have had to do with the making of the portage or portages. As to whether I would attach any particular significance to the fact that there was this portage route beginning and ending as indicated on the map and sufficiently well defined for surveyors to be able to locate it and delineate it on their plats, I would say I would generally attach such significance as I have indicated; and further such significance as whatever additional information I might have would seem to me to make proper in the case. The name might show that the portage had been used a long time before; it might show various other things, that is to say, we need further information in order to draw any conclusion in this matter.

I would call counsel's attention to the fact that I hap-
5256 pen to have noticed within the last year over in southern Michigan that there is a road that they still call the Chicago road. It does not indicate, as I understand it, that people are in the habit of traveling that road to Chicago or that they have for a generation or two; but that originally that was a part of the old trail between Detroit and Chicago.

As to whether in the treaty of 1816 with the Ottawas, the west end of the portage road was the point from which the boundary line of this tract that was ceded by the Indians was determined, I would say I am not sure that I follow that Mr. Corneau.

The government boundary was the line ten miles north of the west end of the portage between Chicago Creek and Desplaines Creek, something of that sort; here it is: "To a point

ten miles north of the west end of the portage between Chicago Creek which empties into Lake Michigan, and the river Desplaines, a fork of the Illinois."

As to whether or not that would tend to indicate to my mind that the portage road was pretty well defined and pretty well known at that time, or that the course and location of the portage was pretty well known at the time, would say

I suppose the Commissioners had in mind some point
5257 which they thought they described in this fashion.

I believe that Graham and Phillips undertook to run the boundary lines of that cession, and I suppose they did run the boundary line. I do not happen to know that that is the line known locally here among real estate men and so on as the Indian boundary line. If counsel states it I will see no reason to question it. Taking into account any sort of use of the Desplaines, whether by boats floated in water all the way; whether by long portages or short portages; whether difficulties were encountered and portages had to be made on the way or not; as to whether it is my opinion that, during the period from the latter part of the seventeenth century through the first third of the nineteenth century, and particularly during the period from 1783 and 1825 and thereabouts, men engaged in the fur trade did pass up and down the Desplaines river in canoes and flat bottomed

boats very regularly, I would say the question would call
5258 for some discussion in the way of an answer, I am not

sure whether counsel and I would understand the same thing by use of the Desplaines river, if the boats were being hauled by traders in carts or if the passage were in some other fashion which had not to do with the use of the Desplaines river, I would not hardly call that use of the Desplaines.

COUNSEL FOR GOVERNMENT. No, I would not have you consider that they were using the Desplaines when they were hauling their boats on carts; but I want you to take into consideration any use made of the Desplaines, whether they made a long portage between the Chicago and Desplaines river or a short one or none at all; and whether after they put their boats in the water in the Desplaines they had to take them out again and make portages around rapids and shallows or any other difficulties or any other similar circumstances.

The WITNESS. I suppose one of those similar difficulties would include making the portage which excluded using the Desplaines altogether, would it not?

COUNSEL FOR GOVERNMENT. I was speaking of the difficulties arising after they had put their boats in the water of the
Desplaines, I am not asking you to assume that if any
5259 people made a portage all the way from the Chicago to
the Illinois river that they were using the Desplaines.

A. As to the last words "very regularly. I do not understand the Desplaines was used,—" I take "very regularly" to mean with great regularity, or something to that effect. I do not understand the Desplaines was used in such fashion by traders in that period.

As to whether I would say the Desplaines was commonly used in that fashion, I would say I would think as I have pointed out at various times heretofore that when there was a trader or other individual who had occasion to pass up the general route of the Illinois River Valley toward Lake Michigan, or to pass in the other direction down, if he found it practicable to use the Desplaines, and if his wishes and convenience would admit of such use, that doubtless he made such use as he found he could make of it. Various sources and authorities have been cited and used in my own testimony and in the testimony of others in this case, which go to indicate what the character of that use was. I do not understand that there was any great degree of regularity in the use of the Desplaines by boats in the water barring or perhaps ex-
plaining that if counsel would regard a passage once a
5260 year or twice a year as constituting regular use, in that
sense perhaps something could be said as to the regularity of such use."

As to whether I would say that it was a common occurrence during the period from 1783 to 1825 or thereabouts for traders or travelers to use the Desplaines to some extent with boats, I would say it seems clear from the facts that the Desplaines was used to some extent a good many times during that forty odd year period. As to whether I would say that the Desplaines was not commonly used during that period, I would say it would depend upon what counsel means by commonly.

Q. I mean just what the word means.

A. I suppose you understand that there are degrees as to what is meant when one uses the word in that way?

Q. Well, you used it yourself the other day; in speaking of somebody or other you said that you did not think that the Desplaines was commonly used all the way from Lake Michigan down or something of that sort. You may construe the word in this case as you used it in that case.

A. From 1818 to 1824 according to Mr. Hubbard the Desplaines was used by the American Fur Company, I believe twice a year or practically that. That constitutes regularity in a certain sense, of course. That is to say, they used
5261 it in the fall in the way his accounts of the down trips in the fall indicate; and I believe they do show that they had their boats in the water some of the time in those down trips; and they used it in the spring in the way that some of his accounts indicate. I know of no other similar regular use of the Desplaines or of any account of such use for the remainder of the period.

There are the various scattering accounts of direct or indirect use, or bearing, I mean to say, on the question of the use of the Desplaines which have been cited in the record.

According to the record I stated in my final conclusion on record 4259 (Abst., 1605), that it is clear that there is a highway of travel between Lake Michigan and the Mississippi by way of the Chicago-Illinois river route. At the same time I stated that doubtless it was followed between the Chicago and the Illinois when it was practicable. I would now qualify that statement further by saying it might have been practicable to use the Desplaines at times when it did not suit the convenience or desire of the traveler so to do, and at record page
4415 (Abst., 1661) I appear to have spoken of the usual or frequently followed Illinois river route.

5262 Whereupon counsel stated that at page 4391 (Abst., 1655) the witness had said "I would suppose as a matter of interference and observation that that may have been the case" that the Desplaines had been used in cases of which we had no specific accounts, and quoted the record of his testimony at p. 4396 (Abst., 1657).

5263 The Witness. As to whether I presume that the Desplaines was used in cases of which we have no specific accounts, I would suggest that I have squarely answered that question in the place to which counsel had just called my attention at page 4396 of the record. Having in mind these facts as to whether or not in my opinion the Desplaines river was to some extent at least commonly used by traders and others during the period between 1783 and 1825, and ignoring the character of the use, would reply that it was used certainly to some extent in that period by traders and others. As to "commonly" I would understand that this is a relative term and it would depend entirely upon the way in which it is used and the way in which it is

understood whether the term is justified or not. To put my own interpretation upon the words "commonly used" would say that, "It is my opinion that there was use of the
5264 Desplaines river or attempted use of the Desplaines river. Counsel has directed me to waive that particular matter,
5265 as to the nature and extent of that use, between 1783 and 1825. Apparently the use of the Desplaines was more extensive in years beginning 1817 or 1818 and up to 1824 than any other portion of the period. For the rest, we have only such information as the account of Heward of the use he was supposed to have made of the Desplaines, and we have to depend largely for a conclusion on this question of our knowledge of the physical conditions, our knowledge of the probable, conceivable or possible demand for such a route or highway as the Desplaines offered in this period, and upon our knowledge of the way at different times in and before this period that traders, and travels were in the habit of passing from Lake Michigan to the Illinois river proper or vice versa. Do not think it has been established that the Desplaines was commonly used in this period. In this period in the sense that I may express in another way by saying frequently used. I speak of use by boats in the water. It was used in the way the traders who Schoolcraft speaks of intended to attempt to use it, more frequently than it was used in its entirety.

5266 CLARENCE W. ALVORD, heretofore called as a witness on behalf of the complainant, resumed the stand and was further cross-examined as follows:

In my conclusion as given on pages 361 and 362 of the record (Abst., 170) I said:

"As a historian I would answer the question as follows:

'Giving due weight to all the sources of information
5267 that are available, my opinion is that from the latter part of the Twelfth Century through the first third of the Nineteenth Century men engaged in the fur trade passed up and down the Chicago and Desplaines rivers in canoes and flat boats very regularly.' "

I do not wish that to stand as "flat boats." My intention was to say "flat bottom boats."

MILO MILTON QUAIFE, a witness on behalf of the defendant, thereupon resumed the stand:

Re-direct Examination by Mr. Scott.

5268 I take up the matter of Joutel's journal as published in volume 3 of Margry referred to in my cross-examination, page 4700 (Abst., 1739), where I reserved the book for further consideration. Upon further study I find that the manuscript in this journal as published in Margry existed in a mutilated condition, some parts lacking all together. Margry supplied these portions as best he might. I give what I understand to be a reasonable fair and accurate translation of pages 648 and 649, volume 3 Margry. The editor says:

"The sixth number of this division, a document without the author's name is the relation of Henry Joutel who according to a letter of this Lieutenant of La Salle was employed by Lemoyne D'Ilberville to rediscover the mouth of the Mississippi river, although, however, said he, it was found as I think without great trouble.

5269 We had much of trouble and peril in it and others will have the profit. It appears or it seems that all has been done that could be done to eradicate the idea that M. de La Salle was the originator of this enterprise. This allegation of Joutel's leads one to desire to know how his manuscript has been preserved to us.

In the first place one of the chapters of Delisle which I have reproduced to fill up the omission of the original bears these words noted on it:

'This journal was written by Sier Joutel and was communicated to my father by M. D'Iberville who transmitted it to him in 1701 at Rochefort or from Rochefort as the cause may be.' "

I would suggest as a translation for the word "cahier" a bundle of manuscript or some such significance as that.

"A letter addressed to La Salle in 1703 by Claud Delisle according to a notation placed at its head, affirms what is about to be read or what we are about to read upon it.

Claud Delisle (with a question mark as to Claud, evidently he is uncertain which of the Delisles it was) explains that this manuscript came into his possession two years before and that he read it with much pleasure and profit but that the leaves which were missing played

5270 havoc with all the measures of a geographer who does not know how to profit by the distances, or who is unable to profit by the distance or the compass when one is lacking. These omissions worried Delisle a good deal. I have been a long time troubled he writes (or you may translate 'empine' perhaps as worried) to become acquainted with the author of this joural in order to have recourse to him and beg him to instruct me concerning that which is lacking in his work. I do not know how I became aware that it was M. Jouventel, but having inquired concerning him from many persons I was unable to discover either where he was or even if he was still alive. But now comes Monsieur de Abbe de Beaumont who explains the mystery in apprising me (or informing me) that it is you, Monsieur, who are the man whom I have so long desired to know; and that your name is Joutel and not Jouventel. If I had been able to disinter you before my map was engraved I would have sent it to you to beg you to give me your advice concerning it, but since to my misfortune that did not so turn out, or that did not happen, all the favor which I ask of you and this I ask with hands clasped (or ask earnestly) is that you will have someone write down for me on your original the portions which are lacking in the copy which has been communicated to me, so that I may be able to put things together and assure myself by you
5271 yourself of the entire journey (or route) which you made.

I hope that to the consideration of Abbe de Beaumont or with the consideration of Abbe de Beaumont you will not refuse me this favor."

Here ends the letter of Delisle, and Joutel replied, and I read:

"I learn from your letter that you have become aware or have seen those memoirs which were put in the hands of M. de Pontchartrain, who asked them of me on the first voyage which M. D'Iberville made into that country, and it was promised that they would be returned to me but which none the less (or nevertheless) I have never had any news since. I do not know what caused this omission (or this hiatus) which you note has been torn out, and the reason which may have caused it or literally which one has had.

I transmit to you that which you point out you lack

as well as I have been able. I would desire to be able to give you more light, but as I had no instrument to enable me to take the elevations; and moreover our greatest need was to be able to proceed, and our route (or our journey) was traversed by numerous hindrances as you see in my memoirs in the forest and rivers, ravines and other like things where it was necessary for us to seek for fords and passages, hindred us from being
5272 able to direct our route properly or well; and furthermore I did not have or I do not have the knowledge to enable me to draw the plan of the places where we passed so that I indicate them to you haphazard (or by chance).

If I had been happy enough to have the honor of your acquaintance before I was written to by M. de Pontchartrain we would perhaps have been able to make something out of these memoirs, but as there have been several who have written of them although they speak falsely in many of the descriptions or narratives, the public is unable to judge the true from the false, not having been there."

It appears from an examination of the relation that this portion of the relation represented by the editor to have been taken from the manuscript which Delisle has left, and that this portion of the manuscript leaves off, and the original text of Joutel begins on page 484, that the chapter concludes with this paragraph, and the next chapter which deals further with the plan of the Joutel party in this period by Joutel himself; that is to say, is from the original manuscript, and is the
5273 chapter from which the complainant's witness took the paragraph that he put into the record.

As to that part of the manuscript which I took up and gave with reasonable accuracy the substance of the narrative, I have no reason to materially change any of the translations I gave. Joutel in telling of when he was at Chicago about starting to run up the lake, used the French word
5274 "aschafaud." The English translation of this part of Joutel's journal, translates that word as scaffold, that is they placed the canoe on a scaffold.

I will read from page 497 of the document (reading):

"The said canoes were laden with merchandise, with powder, ball and other munitions appropriate to the trade which is conducted in that place; but they were not able to come because there was not any water, or

there was no water at that time in the river; or, rather, that it was frozen."

That refers to the men from Montreal, who abandoned their canoes at Chicago, and went over to Fort Lewis to inform Tonty they had brought goods to Chicago, and could
5275 bring them no further. This refers to the men who came to Chicago in December.

Referring to Hull's map entitled "Copy of Map of the Country from Lake Michigan to the Illinois River, from the papers of Gen. Wm. Hull, Govr. of Michigan, from 1805 to 1812," complainant's witness, transcript, 369, (Abst., 172) said:

5276 "The map is evidently drawn by General Hull, according to the statement of Mr. Hager, and was found among his manuscripts by his grandson. Historians would regard it as an authentic map coming from the hands of General Hull, unless some evidence to the contrary was shown."

Do not understand that this is a valid conclusion. My own opinion is that historians would presume that the evidence was sufficient to establish the proposition, in the light of any contrary evidence that the map came from the papers of General Hull. I see no warrant whatever for assuming that it was drawn by Hull or that historians would regard it as coming from his hand. If there is evidence to show this such evidence has not been put into the record. As I have pointed out, Hull was a man of sluggish temperament in this
5277 period of his life; so do not think it is a fair conclusion that while he was governor of the territory of Michigan that he himself had been to Chicago over the portage and had drawn this map.

Turning now to the map itself, I would point out first with reference to the table of distances that reckoning from the point where the portage strikes the Desplaines—

Mr. CORNEAU. By the way, before you go any further; I move to strike out that part of the answer preceding the words "Turning now to the map itself," and so on, as not being responsive to the question and as not being a subject matter for re-direct examination.

Mr. SCOTT. Proceed.

A. Beginning then with the point where the portage strikes the Desplaines, the table of distances down to the mouth of the Desplaines or to the Kankakee totals up as I make it 59 miles. To make sure that I am not committing

an error here I will simply read the distances: "From the river De Cross river 6 miles; to Monjoliette 38 miles; to River DuPage 11 miles; to the fork on the Kankakee, 4 miles."

5278 The distance in fact is approximately 45 miles. The representation of Lake Michigan is inaccurate in this respect. It represents the trend of the lake as sharply from northeast to southwest, that the westernmost point is near the southern end of the western side, approximately at the mouth of Chicago, Lake Michigan stands more nearly in fact north and south, leaving out the extreme northern end which obviously turns toward the east somewhat.

The river labeled Riv. du Chemin on the Hull map is represented as going into Lake Michigan on the eastern side, some distance above southern end of lake, approximately in the region of the mouth of the modern St. Joseph. The river du Chemin was, I understand it, a stream sometimes called Trail Creek, which empties into the lake at Michigan City, Indiana, further to the south or southwest; and with reference to the lake at the southern end, rather than around

5279 to the eastern side.

The Grand Killamick on this map lies directly south of the whole southern end of the lake, flows into Lake Michigan toward the eastern side of the southern end, rather than toward the western side. From the point where the portage strikes the river Desplaines, that river is represented as flowing approximately due west, barring sinuosities, to its junction with the Kankakee, the mouth of the Desplaines being almost exactly in a due west direction of the point where the portage strikes the Desplaines. The Kankakee is represented as rising southwest of Lake Michigan. None of its sources are shown as far to the east with the possible exception of one, as the westernmost point of Lake Michigan. Perhaps the drawer did not care to indicate the further course of the Kankakee. The Desplaines is represented as

5280 rising further south than the north branch of the Chicago river. Peoria lake is shown due west of the upper portion of the Kankakee river proper, and is considerably further south than any point on the Kankakee.

With reference to Hennepin's map referred to by me at transcript, 4274 (Abst., 1613), when I prepared the statement with reference to these maps, I assumed that Hennepin's map bore out the verbal account in his narrative as to the navigability or non-navigability of these streams. Made no

particular study in that connection. I now wish to qualify my testimony in this particular. Hennepin's map in
5281 Thwaite's, reprint of Hennepin, facing page 21, Volume one, shows a river flowing from the south toward the north into the southern end of Lake Michigan. The Fort of the Miamis is located at the mouth of the river. Further to the west the Illinois river is represented, and proceeding up the Illinois, it divides into three main tributaries, the three are roughly parallel with each other, proceeding from north to south. Between the middle of these three, and the river which flows into the south end of lake Michigan, is the word "portage," which I interpret to mean, admitting and observing that there are many inaccuracies in the map, a portage between the Kankakee and the St. Joseph.

The northernmost of the three tributaries of the Illinois rises somewhat south of Green Bay, flows south, then southwest to its junction with the Illinois, its course coming close to the western projection of Lake Michigan which projection, while not accurate, may be supposed to stand for the modern Chicago river. It appears rather as a bay or an arm than as a river, but has the south branch and the
5282 north branch clearly indicated. There is no indication of a portage between the arm of Lake Michigan and the river which flows down from this point to the southwest to join the Illinois.

Re-cross Examination.

Mr. CORNEAU. What river do you take to be referred to by the most southerly of these three rivers you have mentioned, being the river which comes together with the river to which the word "portage" apparently refers?

The WITNESS. I could not give any modern equivalent for that river. It appears to rise down near the Ohio and flow in a generally northwesterly direction to its junction with the other stream which counsel has indicated. As I have said, the map is erroneous in many erspects.

Re-direct Examination (Continued).

Heretofore I have referred to General Gage's report. At transcript, 4420 (Abst., 1662), the portion, which refers to the fact that the French went up the Mississippi but a cer-

tain distance. I now refer to chapter 3 of Winsor's
5283 Western Movement entitled Louisiana, Florida and the Illinois country, 1763 to 1768, page 24, dealing especially with the question of trade in the northwest in that period. On page 23 has been discussed the pre-eminence which St. Louis acquires as a result of issues arising out of the peace of 1763, and then speaks of French settlements in vicinity of lower Illinois, especially on western side of the river, and the trade in this region, reading page 24:

"The trade of that part of this distant country lying west of the Lake of the Woods had been drawn in large part of the English factors at Hudson's Bay. From Lake Superior the traders were already pushing to Rainy Lake, and by 1770 they had established posts on Lake Winnepeg and beyond, as well as farther south on the upper branches of the Mississippi.

Trading west of Detroit had been prohibited except by license, and under such a privilege Alexander Henry had enjoyed the freedom of Lake Superior. But police control in such conditions was impossible, and it was not unlikely that the trader without a license turned his tracks down the Great Valley, rather than
5284 risk detection on the St. Lawrence. The English commander at Fort Chartres was always complaining that the traders on the opposite sides of the Mississippi acted in collusion. There were ninety carrying places between the Lake of the Woods and Montreal. It was not strange that the trading canoes were oftener seen gliding on the almost uninterrupted current of the Mississippi, where they were easily thrown into companionship with the French packmen, as far north as the Falls of St. Anthony and higher up. Such intercourse boded no good to the English."

If Gage was unable to learn that French traders had ever been north of the mouth of the Illinois by 1762, evidently very promptly after that they found their way much further north. Speaking, from memory, I would say, he further indicates in this volume that soon the French were pushing over towards the Great Lakes, competing with the
5285 English within twenty leagues of Detroit.

With reference to the Hubbard manuscript, which I referred to at transcript, 4883 (Abst., 1801), I wrote a letter to Henry Hamilton, who compiled the life of Hubbard used in

this case and asked him to state whether certain manuscripts were written by Hubbard. I read his answer (reading):

"Richmond, Illinois, June 15, 1911.

I have yours of the 13th and in reply beg to state that the 'Old account book,' you refer to, was the property of Mr. Hubbard, and writing in pencil is all his writing. This autobiography is what I compiled his memoirs from.

The sheets of manuscript you refer to where copied from the old book, to be used for an address at an Old
5286 Settlers' meeting in Iroquois County, but whether I copied them, or whether Mr. Hubbard made the copy, himself, I am unable to say, without a personal examination.

It should, however, be easy to determine with the handwriting is that of Mr. Hubbard or not. Those sheets possess no particular value and were turned over to the Society simply because they happened to be in the book.

I do not expect to be in Chicago before July, but if I can give you any addition information shall be glad to do so.

Yours truly,

H. E. HAMILTON."

The account book referred to is the large one which the society possesses. It contains Hubbard's manuscript as indicated here, also clippings, and other things. The statements with reference to the loose sheets has no application to the manuscript offered in evidence, dealing with Hubbard's
5287 First Year in the West. I extracted the pertinent portions of the manuscript from the collection and sent them under registered letter to Hamilton, and asked him to state who had written them. His reply follows:

"Richmond, Ills.

June 20, 1911.

Mr. M. M. Quaife,
Chicago:

Dear Sir:

Referring to the manuscript of which you send me pages 27-29 and which I herewith return.

The manuscript is in the handwriting of Gordon S. Hubbard and details some incidents of his early life. It was undoubtedly written by him as an address to be read at some Old Settlers' Meeting, and was so read.

The corrections and notations would indicate that this manuscript had been in the hands of a Printer, and so I presume that it was published in some newspaper at the time it was read.

It was not used in the preparation of his memoirs. That book was compiled from the old account book, and from letters written to me by Mr. Hubbard, during a winter's sojourn in California, together with my recollection of conversations had with him during the long years of our intimacy. This manuscript has no particular historical value other than the fact that it is in the handwriting of Mr. Hubbard, as it is a repetition of what he had already written in the old book.

5288

During the later years of Mr. Hubbard's life he was frequently called upon to read a paper, or give an address upon early times, and he probably used the facts stated in his 'Life,' very many times. These papers were sometimes written by himself, and at other times were prepared by myself or some member of his family.

Among papers thus read, I remember one which was read at a meeting of the 'Sons of Vermont.' Another, for the benefit of a church, another at a Pioneers' Meeting at Racine, and still another, at an old settlers' meeting at Bunkum in Iroquois Co. I think the manuscript in question was prepared for the Bunkum meeting.

"I knew of nothing further than I can say which will add to the identification of this manuscript. There is no question but what the facts are as I have stated them.

Yours truly,

H. E. Hamilton."

The particular sheets I sent to Hamilton to identify are the only ones which I have quoted in my testimony with reference to the Hubbard manuscript of "First Year of his Life in the West."

5289

I turn to the letter produced in my cross-examination of July 1st, an original letter of Gurdon S. Hubbard.

Q. Is there anything in that letter which shows jurisdiction of Deschamps in the American Fur Company trade?

Objection; incompetent, irrelevant and immaterial, not proper re-direct.

Answer: Yes, sir. It is the letter of Hubbard to George H. Woodruff dated June 7, 1881 (reading):

5290 "You ask me for my recollections of Mount Joliett &c. I first saw that place in October, 1818. I was then a boy 16 years old under the command on Antoine Deschamps an old gray-haired educated man, in charge of the American Fur Co.'s trading posts on the Illinois River. His command was known as the Illinois Brigade, comprised of 12 Mackanaw bots with which we coasted the eastern shore of Lake Michigan"—here occurs that interlienation, from Mackanaw—"loaded with merchandise for the Indian trade on the Illinois River. * * *

The goods transported across the 'portage' on our men's backs, reloaded at the Desplaines which we descended to our destined trading post locations. The first on the Illinois River about one mile above the present city Hennepin, next Westby City & on down 40 to 60 miles apart to its mouth rather 20 to 30 miles above. This embraced Mr. Deschamps' jurisdiction extending east to Wabash and west Mississippi Rivers."

5291 As to my further qualifications of the reliability of details in Hubbard, I read from this letter written to me by Mr. Hamilton, dated June 20, 1911 (reading):

"The manuscript is in the handwriting of Gurdon S. Hubbard and details some incidents of his early life. It was undoubtedly written by him as an address to be used at some Old Settlers Meetings, and was so read. The corrections and notations would indicate that this manuscript had ben in the hands of a printer, and so I presume that it was published in some newspaper at the time it was read. It was not used in the preparation of his memoirs. That book was compiled from the

5292 old account book, and from letters written to me by Mr. Hubbard, during a winters sojourn in California, together with my recollection of conversations had with him during the long years of our intimacy."

This agrees in spirit with what Hamilton says in the introduction to the public life of Hubard, and elaborates it as to the statement which was compiled from Hamilton's recollection of conversations he had with Hubbard.

I call attention to Hubbard's letter to Woodruff; I had as part of my study of Hubbard's life come to the conclusion that the story with reference to Isle LaCache was invalid, and baseless as to the details in the way in which it received its name.

I find in this letter Hubbard himself states that he re-
5293 gards those stories as fabulous and not authentic history. I read the pertinent portion of the letter:

"I don't credit the whole story, though I don't doubt goods were hidden. Old Papaneau, who was not as superstitious as some in those early days of men, said to me he had heard a good many different versions of the story. Like many others in those days are not to be credited or given authoritative history of the past. I came to the conclusion that some property had been saved by hiding on the island of the river, or the grove
5294 west, probably the latter. Because the river island is too low for safe burial of articles. That the name was given 'Cashe' (Hiding) from a deposit for safety of something valuable under some unusual circumstance I have no doubt, but do not give any credit to the old tradition. I think it best not to mention such things to be looked upon as history."

The history of Isle la Cache as published in the life is set forth with considerable and precise detail. Conversations are given in much the same fashion that Jacob Weems reports the events of the early life of the precocious George Washington, and evidently Hubbard would put no stock whatever in the details of that published story. I think it fair to assume that other details in the book are open to question, and should be accepted only after careful examination and verification.

In speaking of Drown's history of Peoria, I have stated that I considered that particular part of Drown in regard to the keel boats and Durham boats as being a fish story.
5295 I had in mind at that time that a fish story was a self-evident yard. From memory, the century dictionary defines it as a tale or narrative that is exaggerated or improbable. As further reason for believing the story invalid, I call attention to Drown's statement as to the population of Peoria in this period. At page 81 is an account of the coming of the first white American settlers to Peoria in 1819:

"In the spring of 1819 a few hardy sons of Kentucky, Virginia and New York living as I have before said, on Shoal Creek, resolved on an enterprise and settlement further north if found favorable wishes in this delightful part of our state. Accordingly seven persons united themselves into a band for this undertaking, and fitting
5296 out a keel boat destined for the Illinois river and Fort

Clark at the foot of Peoria lake, as this place was then called. Those persons were"—

and then he proceeds to name them all. Shall not undertake to read all those names; and then there is a further account of their coming and their arrival here early in 1819. Then omitting a couple of pages, I begin to read again on page 83 to show further as to the gorwth of population in Peoria in this period (reading):

"As I have said before, Eads and his companions commenced the first improvements after the destruction of this French town. They were soon followed by a few hardy sons of the Empire and Eastern States. In the spring of 1826, Capt. Henry B. Stillman came here from the Sangamon country where he emegrated to in 1818, from Canandaigna, N. Y. (his native place, and where I knew him when a child, more than forty years since). He was accompanied by two brothers from Canandaigna. Capt. Stillman is still among us, a wealthy citizen and proprietor in city lots. Another of our old pioneers and citizens, who is still with us, Mr. John Hamlin, of Mass. He came here in the spring of 1821 from Springfield, in company with Judge Lockwood, Judge Latham (who afterwards became a citizen and proprietor of city lots, and died here in 1826, and whom I shall have occasion hereafter to notice). Maj. Iles, Gen. J. Adams and a
5297 Mr. Winchester, Maj. Graham, Indian agent, of St. Louis, came here about that time with a keel-boat and proceeded up to La Salle prairie (Rome) where he paid off the Indians their annuity. Some of them returned and settled here subsequently, and became useful citizens in building up our city."

The passage on page 84, which was first cited in the record from Drown as to John Hamlin's employment with the American Fur Company and as to trade being carried on in keel boats and Durham boats up the Illinois and Desplaines to Chicago, concludes all that appears in Drowns as to the population of Peoria in 1825.

Two individuals have been named in addition to the seven who come in 1819. Evidently there was not a very large population in this place in 1825, nor was there at Chicago at that time, not being more than three or four families outside of the garrison. Yet it is represented in Drown's Peoria, page 84, that Hamlin exported produce to Chicago in 1825 in keel

boats as far as the mouth of the Kankakee, and there built a storehouse to restore goods from the keel boats, and from that point he took them up the Aux Plain river to Chicago by Durham boats. If the passage means anything at all, it
5298 means that considerable commercial operation was engaged in at this time in this way.

Mr. CORNEAU. Let me ask you right there; you referred to that passage that was read in your cross-examination, did you not? I just want to make that clear on the record.

The WITNESS. The passage was originally read in by the witness for the United States. These other passages were called to my attention by counsel for the United States on cross-examination.

Further as to the population of Peoria it appears that as late as 1830, Peoria had but 22 buildings including the court house, store, blacksmith shop and all. It is improbable and unreasonable to suppose that any such commerce was being carried on between Peoria and Chicago by way of Illinois in keel boats, and Desplaines river in Durham boats.

In this connection I have in mind what I know of physical conditions of Desplaines and historical sources, dealing with the use white men made of it, and the way in which the travel and trade was carried on between Joliet and down the Illinois, and Chicago in the early period of white occu-
5299 pation around 1830 and later. Have looked up the different kinds of boats used on Western waters in this period. Keel boats were used for both up and down stream navigation. Was a heavy and unwieldy affair and the process of work upstream, extremely laborious. It would sometimes take three months to bring a keel boat—am not sure this was not the usual occurrence—from New Orleans to the mouth of the Ohio or the St. Louis. Toil was extremely severe.
5300 They oftentimes took advantage of eddies, but the usual method of propelling them upstream was either by taking hold of bushes and pulling the boat along or running along side of the bank. Of course, labor involved depended on size of boat and load.

In this connection I refer to Evans Pedestrious Tour,
5301 in Hoffman's Winter in the West, volume One, page 244, is a passage bearing on the interest of St. Louis in having a canal from Lake Michigan to the Illinois.

> "There is one improvement to be made however, in this section of the country which will greatly influence the permanent value of property of Chicago."

(Reading):

"St. Louis would then be brought comparatively near to New York, while two-thirds of the Mississippi Valley would be supplied by this route immediately from the markets of the latter. This canal is the only remaining link wanting to complete the most stupendous chain of inland communication in the world."

That helps to supply a motive on the part of the people of St. Louis for desiring such a canal, such a motive as Professor McLaughlin on his examination was unable to suggest or perceive.

5302 *Re-cross Examination by Mr. Corneau.*

The book shown me is the account book which I undertook to describe to Mr. Hamilton, which he, without hesitation, said contained the account in Hubbard's own handwriting, which was used in preparing memoirs. At this point (indicating) is a description of the first trip down the Desplaines.

This part which I am now asked by counsel to read is in lead pencil and is in the writing of Mr. Hubbard accord-
5303 ing to Mr. Hamilton's letter. To explain the connection before I begin to read it, I would say, having looked back over preceding pages, Hubbard has been giving an account of the passage through Mud Lake, and he goes on with the passage, and at the point which counsel refers to, he takes up the account of their further progress down the Desplaines river (reading):

"Taking up our voyage with boats loaded, we proceeded down the Desplaines to Isle LaCache, where from low water we were compelled to unload the greater part of our goods in order to pass our boats over the shoal that here presented itself, and we camped." * * *

"Our progress from this point was very slow, most of the way to the Illinois river our goods were carried on our backs, our boats pulled almost light over the shal-
5304 low places, often having to put poles under the bottom at the very shallow rocky places, some three weeks was occupied in getting to mouth of Fox river, two days more brought us to the foot of Starved Rock."

From there we had the consolation of knowing our further progress would not be retarded for want of sufficient depth of water."

As to the authorship of the Hull map, have looked into Andreas' and read remarks of complainant's witness, also various publications on Hull with the idea of learning something of his life, but not with particular reference to this map, though I would have taken note of anything in that connection.

5305 I have stated I thought it would be a fair conclusion from what complainant's witness stated at transcript 370 (Abst., 173) that he meant to state that Hull had been
5306 in Chicago. It will be a perfectly fair deduction from this passage, I will say, that the witness meant to say that Hull had been in Chicago or in this vicinity. Hardly see how he could have drawn the map without having seen the vicinity unless it is a mere copy of someone else's map, which idea was evidently not intended to be conveyed at this point in the record. He says the map is evidently drawn by General Hull, and further that historians would regard it as an authentic copy coming from the hands of Hull, unless evidence to the contrary was shown.

5307 J. W. WOERMANN, witness for the defendant, testified further:

Cross-Examination by Mr. Cressy.

It was stipulated and agreed between the counsel that either side might call on the other for any maps which had been referred to during the examination of historical witnesses, and the maps when called for and furnished might be considered as formally offered in evidence, and that either party might use the maps referred to.

Counsel for defendant then introduced in evidence a report of the sub-committee on Dams and Water Power, to the Committee of Interstate and Foreign Commerce, House of Representatives, second session, Sixtieth Congress, February 25, 1909, Washington, Government Printing Office, a
5308 hearing before Honorable William H. Taft, Secretary of War, in connection with the development of the Illinois State Valley Power, pages 36, 37 and 38:

5309 "Hearing before Hon. William H. Taft, Secretary of War, in connection with the development of the Illinois Valley Water Power.

War Department, District of Columbia.
February 23, 1907, 10:30 A. M.

"Present, Brig. Gen. Alexander Mackenzie, Chief of Engineers, United States Army; Mr. I. Randolph, representing the State of Illinois; Hon. H. M. Snapp, Mr. J. W. Woerman, and Mr. Charles A. Monroe, representing the Economy Light and Power Company.

SECRETARY TAFT. Gentlemen, as I understand this application, it is to prevent me from granting a permit to any person on the Desplaines river to build a dam for water power purposes, on the ground that the state is interested in supervising that matter itself. Is that about the size of it?

Statement of Mr. I. Randolph on Behalf of the State of Illinois.

The position of the state, as I understand it, is this: I am appearing in this matter at the present time for the state, because, as I understand, the Sanitary District has no interest in the present application whatever. The work of The Sanitary District, however, has made possible the development of very, very important water power on the Desplaines and Illinois rivers. Prior to the completion of that work the water powers on the Desplaines river were inconsequential. They amounted to but little. The water power on the Illinois river was somewhat better. There was no development at Marceilles. But the opening of the Sanitary District naturally has turned into those rivers a permanent volume of water, which makes the development of the water powers possible on quite a valuable scale.

5310

The interest of the state in this is to see that this asset is developed to the fullest extent and that it shall be so developed as not to interfere with the creation of a waterway such as the state hopes to see put through.

Mr. SNAPP. If the general government has no right either in this property or to the water power developed thereby, there can properly be no determination of this matter by any of the officers of the government. Now, as a matter of fact, all the property interest in the Desplaines Valley, belongs to private parties. There is

absolutely no public ownership of any land in the Desplaines Valley. The stream is not a navigable stream. In low water the entire flow of the Desplaines river would come probably through a 6-inch pipe. It falls downhill, falling 100 feet in less than 30 miles. Neither the flow of the water nor the contour of the land makes
5311 the stream navigable, and it has been so held.

Secretary TAFT. You say the Desplaines is not a navigable stream?

Mr. SNAPP. It is not a navigable stream either in law or in fact. It could not be navigated in low water, in the natural condition of the river, by a birch-bark canoe.

Secretary TAFT. How do we get any jurisdiction of it, General Mackenzie?

Mr. SNAPP. Let me answer, Mr. Secretary, as a lawyer. You undoubtedly have none, and I was going to bring to the attention of the Secretary—

Secretary TAFT. Why do you come here for a permit, then?

Mr. Snapp then explains that they did not come for a permit but for advice to be more safe to proceed.

Mr. Randolph then states that the river is meandered by the surveys, and thinks that might make it navigable. Secretary Taft answers that has nothing to do with determining whether the river is navigable. A long conversation follows, after which Secretary Taft rendered the following decision, taken down in shorthand and now on file in the War Department with the Chief of Engineers.

OPINION.

There are two answers to the contention of the State of Illinois in this matter. The application, if I under-
5312 stand it—and it is rather informal than otherwise—is for this department to take no official action which may interfere with the state control of the water power, which may be developed in the Des Plaines River under a proposed improvement by the construction of a 14-foot waterway; and also to take no action which may interfere with the waterway as a waterway.

There are two answers to that. The department is not going to take any action, and has not taken any action. The advisory step, taken at the instance of Mr.

Snapp, or the persons who intended to put some sort of water power construction in the Des Plaines River, was extra official, and really was beyond the authority of the Chief of Engineers, except as he was accommodating to express an opinion in the interest of explanation. The truth is that the Des Plaines River, not being a navigable stream, no permit was necessary to put any obstruction into it which the War Department could prevent. But even if it had been a navigable stream, and even if the application had been made, and properly made to this department, to say whether this would interfere with navigation if the department concluded it would not interfere with navigation, then it is not within the power of the department to withhold its expressing such an opinion and granting such a permit, so
5313 far as the United States is concerned, for the purpose of aiding the State in controlling the water power. If the State has any control over the water power, which it may exercise in conflict with the claimed rights of the riparian owner, then it must exercise it itself, through its own legislation and through its own executive officers. All the United States does, assuming it to be a navigable stream, is merely to protect the navigation of the stream. With reference to the water power, it has no function except in respect to water power which it itself creates by its own investment in property that it itself owns; and then, of course, it may say how that water power shall be used.

But with respect to the water power on a navigable stream, which may be exercised without interference with the use of the river for navigation purposes; that is controlled by the laws of the State. It is controlled by the riparian ownership and by the common law as it governs those rights. Therefore I do not see, with reference to perform or which it can perform.

It has merely offered a friendly suggestion, with reference to a possible improvement of the river, which has not been authorized and which until it is authorized cannot be regarded as giving any right to this Gov-
5314 ernment to interfere in the use of the stream, the proposed action of the private owners here would not be in conflict with such a plan. That is an expression of

an opinion with reference to existing plans, but not with respect to existing conditions.

Therefore what General Mackenzie has done, out of the kindness of his heart, does not commit this department to any assertion of authority in the matter and certainly does not carry us to the necessity of retracing our steps and saying that they shall go on with this when we had not any power to interfere at all.

It is not that we approve this; it is not that we disapprove it. It is that we have nothing whatever to do with it. That is the truth of it. If the State wishes to control the matter of the water power, then it is for the legislature, through which it can express that view, in so far as it may constitutionally affect it by legislation.

General MACKENZIE. That is virtually what was told the governor, Mr. Secretary, and this is the result of one of our endorsements.

Secretary TAFT. All right; I think that disposes of it."

Whereupon counsel for defendant offered in evidence
5315 extracts from a report by the Internal Improvement Commission of Illinois to Honorable Charles S. Deneen, Governor, February, 1907, published by the State Printers, 1906 (reading):

"From the end of the 'Twelve-mile level' to Lake Joliet, was seventeen miles—a mere surface stream over the rock bed—with a steep declivity over the lower half of the distance descending to a level 76.5 feet below Lake Michigan. Eight out of thirteen miles between the head of Lake Joliet to the head of the Illinois River at the Junction with the Kankakee, is occupied by two deep pools, Lake Joliet and Lake DuPage, with intermediate delivities of seventeen feet."

5316 (Reading, page 25): "The natural low water volume of the Illinois at Morris is nominal, not exceeding 250 to 350 second feet in 1887, practically at extreme low water, after allowing for canal water from Lake Michigan. A measurement of 456 second feet was made on the Kankakee river near its mouth, in September, 1867. Extreme low water at Wilmington for twelve years, 1871-1883, was estimated at 420 second feet. The Des Plaines River practically goes dry above Joliet. The Mazon was dry in 1867. The Fox measured 526 second feet in Sep-

tember, 1867. The canal authorities have measured a low water of 633 feet at La Salle.

Assuming an ordinary low water volume of 1,000 second feet, the effect of introducing 10,000 second feet from Lake Michigan, at Morris, will be to raise the water 5.2 feet above the Claypool plane, and for 14,000 feet to 6.9 feet."

Whereupon, Woermann, the witness for defendant, presented a table of discharge days compiled from the Riverside Gauge record, requested on direct examination,
5317 page 2599 (Abst., 1069). The table referred to being in words and figures as follows:

Objection reserved.

"COMPILED FROM THE RIVERSIDE GAUGE RECORDS.

Number of days when there was no discharge.		Additional days when there was 6 inches depth or less.	
	1886		
July	5 days.	June,	23 days.
August,	19 days.	July,	17 days.
September,	14 days.	September,	2 days.
October,	26 days.	October,	5 days.
November,	29 days.	November,	2 days.
December,	31 days.		
Total,	124 days.	Total,	52 days.
No record from January 1 to May 15.			
	1887		
January,	22 days.	May,	26 days.
June,	16 days.	June,	14 days.
July,	17 days.	August,	20 days.
		September,	13 days.
Total,	55 days.	Total,	73 days.

	Number of days when there was no discharge.		Additional days when there was 6 inches depth or less.	
5318		1888		
	September,	10 days.	September,	18 days.
	October,	31 days.		
	November	30 days.		
	December,	31 days.		
	Total,	102 days.	Total,	18 days.
	No record from April 1 to September 1.			
		1889		
	January,	10 days.	January,	4 days.
	February,	23 days.	February,	5 days.
	March,	5 days.	March,	9 days.
	July,	4 days.	April,	7 days.
	August,	12 days.	May,	10 days.
	September,	30 days.	June,	9 days.
	October,	31 days.	July,	4 days.
	November,	28 days.	August,	2 days.
	December,	4 days.	November,	2 days.
			December,	7 days.
	Total,	147 days.	Total,	59 days.
5319		1890		
	August,	10 days.	July,	8 days.
	September,	14 days.	August,	21 days.
			September,	16 days.
			October,	31 days.
			November,	30 days.
			December,	27 days.
	Total,	24 days.	Total,	133 days.

Number of days when there was no discharge.		Additional days when there was 6 inches depth or less.	
		1891	
		No Record Available.	
		1892	
August,	8 days.	July,	12 days.
September,	18 days.	August,	23 days.
October,	24 days.	September,	12 days.
		October,	7 days.
		November,	30 days.
		December,	31 days.
Total,	50 days.	Total,	115 days.
		No record from January 1 to May 3.	
		1893	
January,	14 days.	January,	17 days.
August,	27 days.	February,	14 days.
September,	30 days.	July,	23 days.
October,	14 days.	August,	4 days.
November,	11 days.	October,	17 days.
December,	11 days.	November,	19 days.
		December,	5 days.
Total,	107 days.	Total,	99 days.
		1894	
July,	18 days.	January,	15 days.
August,	31 days.	June,	28 days.
September,	13 days.	July,	13 days.
October,	31 days.	September,	11 days.
November,	1 day.	November,	29 days.
		December,	27 days.
Total,	94 days.	Total,	123 days.

5320

	Number of days when there was no discharge.		Additional days when there was 6 inches depth or less.	
		1895		
	January,	24 days.(a)		
	February,	25 days.	March,	4 days.
	June,	27 days.	April,	12 days.
5321	July,	31 days.	May,	25 days.
	August,	24 days.	June,	3 days.
	September,	10 days.	August,	7 days.
	October,	31 days.	September,	16 days.
	November,	27 days.	November,	3 days.
	December,	14 days.	December,	5 days.
	Total,	123 days.	Total,	75 days.

(a) No record first seven days.

		1896		
	June,	12 days.	January,	12 days.
	July,	26 days.	February,	15 days.
	August,	6 days.	May,	17 days.
	September,	14 days.	June,	13 days.
			July,	4 days.
			August,	21 days.
			October,	15 days.
			November,	4 days.
			December,	16 days.
	Total,	58 days.	Total,	117 days.

		1897		
5322	August,	25 days.	May,	13 days.
	September,	30 days.	June,	17 days.
	October,	31 days.	July,	31 days.
	November,	13 days.	August,	6 days.
	December,	9 days.	November,	17 days.
			December,	22 days.
	Total,	108 days.	Total,	106 days.

Number of days when there was no discharge.		Additional days when there was 6 inches depth or less.	
		1898	
January,	11 days.	January,	12 days.
August,	10 days.	February,	9 days.
September,	13 days.	May,	20 days.
December,	8 days.	June,	7 days.
		July,	21 days.
		August,	21 days.
		September,	17 days.
		October,	31 days.
		November,	13 days.
		December,	15 days.
Total,	42 days.	Total,	166 days.
		1899	
January,	2 days.	January,	26 days.
February,	21 days.	February,	3 days.
July,	4 days.	April,	8 days.
September,	11 days.	May,	8 days.
October,	14 days.	June,	13 days.
November,	10 days.	July,	8 days.
December,	12 days.	August,	18 days.
		September,	19 days.
		October,	17 days.
		November,	20 days.
		December,	12 days.
Total,	74 days.	Total,	152 days.
		1900	
May,	1 day.	January,	17 days.
June,	11 days.	February,	3 days.
July	10 days.	April,	2 days.
		May,	25 days.
		June,	16 days.
		July,	21 days.
		August,	19 days.
		September,	13 days.
		October,	31 days.
		November,	19 days.
		December,	19 days.
Total,	22 days.	Total,	185 days.

5323

5324

Number of days when there was no discharge.		Additional days when there was 6 inches depth or less.	
		1901	
November,	3 days.	January,	28 days.
December,	31 days.	February,	28 days.
		March,	4 days.
		April,	8 days.
		May,	22 days.
		June,	28 days.
		July,	29 days.
		August,	21 days.
		September,	30 days.
		October,	31 days.
		November,	27 days.
Total,	34 days.	Total,	266 days.

5325

		1902	
January,	31 days.	February,	1 day.
February,	27 days.	March,	15 days.
April,	2 days.	April,	23 days.
September,	11 days.	May,	6 days.
		June,	4 days.
		August,	18 days.
		September,	14 days.
Total,	71 days.	Total,	81 days.
		1903	
July,	4 days.	January,	16 days.
December,	25 days.	May,	24 days.
		June,	24 days.
		July,	14 days.
		August,	9 days.
		October,	6 days.
		November,	30 days.
		December,	6 days.
Total,	29 days.	Total,	128 days.

Number of days when there was no discharge.		Additional days when there was 6 inches depth or less.	
5326	1904		
January,	19 days.	January,	4 days.
June,	23 days.	February,	2 days.
July	31 days.	June,	7 days.
August,	20 days.	August,	8 days.
September,	28 days.	September,	2 days.
October,	8 days.	October,	23 days.
November,	8 days.	November,	22 days.
December,	25 days.	December,	6 days.
Total,	162 days.	Total,	74 days.
	1905		
January,	20 days.	January,	11 days.
February,	25 days.	April,	4 days.
July,	4 days.	June,	7 days.
October,	6 days.	July,	21 days.
		August,	15 days.
		September,	10 days.
		October,	11 days.
		November,	18 days.
		December,	12 days.
Total,	55 days.	Total,	109 days.
5327	1906		
May,	9 days.	January,	5 days.
June,	30 days.	May,	8 days.
July,	31 days.	September,	1 day.
August,	31 days.	October,	12 days.
September,	29 days.	November,	9 days.
October,	16 days.	December,	5 days.
November,	11 days.		
Total,	157 days.	Total,	40 days.

Number of days when there was no discharge.		Additional days when there was 6 inches depth or less.	
		1907	
August,	19 days.	April,	1 day.
September,	14 days.	May,	2 days.
		July,	18 days.
		August,	11 days.
		September,	3 days.
		October,	14 days.
		November,	22 days.
		December,	26 days.
Total,	33 days.	Total,	97 days.

		1908	
June,	2 days.	January,	8 days.
July,	5 days.	February,	8 days.
August,	26 days.	June,	9 days.
September,	30 days.	July,	22 days.
October,	31 days.	August,	5 days.
November,	30 days.		
December,	31 days.		
Total,	155 days.	Total,	52 days.

		1909	
January,	23 days.	January,	5 days.
July,	3 days.	February,	6 days.
August,	9 days.	April,	6 days.
September,	18 days.	May,	8 days.
October,	29 days.	June,	15 days.
November,	7 days.	July,	27 days.
		August,	13 days.
		September,	12 days.
		October,	2 days.
		November,	9 days.
Total,	61 days.	Total,	103 days.

	Number of days when there was no discharge.		Additional days when there was 6 inches depth or less.
5329		1910	
July,	12 days.	April,	6 days.
August,	30 days.	June,	15 days.
September,	28 days.	July,	19 days.
October,	30 days.	August,	
November,	30 days.	September,	2 days.
December,	31 days.	October,	1 day.
Total,	161 days.	Total,	44 days.

RIVERSIDE GAUGE READINGS, SUMMARY.

	Year	Number of days when there was no discharge	Additional days when there was 6 inches depth or less.	Total
	1886	124	52	176
	1887	55	73	128
	1888	102	18	120
	1889	147	59	206
	1890	24	133	157
	1892	50	115	165
	1893	107	99	206
	1894	94	123	217
	1895	213	75	288
	1896	58	117	175
	1897	108	106	214
	1898	42	166	208
	1899	74	152	226
	1900	22	185	207
	1901	34	266	300
	1902	71	81	152
	1903	29	129	158
	1904	162	74	236
	1905	55	109	164
	1906	157	40	197
5330	1907	33	97	130
	1908	155	52	207
	1909	61	103	164
	1910	161	44	205

At Transcript 2476 (Abst., 1031), I testified that I am assistant engineer of the Western Division of the United States army. That is not error. I am the United States assistant engineer to the Division Engineer of the Western Division of the United States army, and not an army officer.

Q. What compensation do you receive as assistant to the Division Engineer of the Western Division?

Objection; incompetent, irrelevant and immaterial.

A. $300 per month and expenses when in the field. Lieutenant Colonel Charles L. Potter is acting Division En-
5331 gineer. I am the only assistant engineer in the Western Division office. From June 1, 1899, to October 1, 1889, in connection with the survey of the waterway from Lake Michigan to La Salle, I was part of the time recording, part working on maps and computations, and part of the time doing instrument work in the field. That was just subsequent to my graduation from Washington University, before I took my final degree.

By recording I mean taking down notes for the men
5332 who ran the instrument. If the man in the field took a measurement, or sight, I recorded the angle and distance and made sketches necessary to amplify notes. Part of the time I ran the level, in determining high water marks from Joliet to La Salle, not in a continuous line. After finding a high water mark, would locate the nearest government bench mark, and run from that bench mark to this high water mark.

With reference to the expression that I did this part of the time and part of the time I recorded; as to who was my superior for whom I recorded the measurements will say I do not recall his name.

5333 As to what proportion of the time I would say I was recording and what proportion of the time I was running a level would say that I did not record very many days. I ran the level more than I recorded, and I was in the office more than I did either one, on the maps and computations and estimates. The office at that time was at 123 Van Buren street, Chicago. My work on the maps was platting notes and doing all work necessary to making a complete map.

As to whether I would say that my work in the office was the work of a draughtsman, I would say it was the work of an engineer draughtsman, particularly so far as the map work was concerned. Of course the work I did on computa-

tion and with instruments would not be called a draughtsman's work.

Q. What compensation did you receive in that position?

Objection; incompetent, irrelevant and immaterial.

5334 A. Was engaged on a salary of $75 a month; the end of second month received $100, the first intimation of increase and that salary continued for three months. I was employed on Missouri River from June, 1890, to January 1, 1891; the first part of the period as first recorder on secondary triangulation. For five months was engaged with level party establishing permanent bench marks between Gallatin, Montana, and Fort Benton, Montana. Was in field all that time. The men in charge of that expedition were on the work between Sioux City and Omaha, Mr. O. B. Wheeler, U. S. Assistant Engineer; on work in Montana, G. A. Marr, U. S. Assistant Engineer. Secondary triangulation party had about seven men. On level work I had two rod men 5335 and an extra man. I did recording on level work, which were known as w-y-e levels.

Q. What compensation did you receive while on this Missouri work.

Objection; incompetent, irrelevant and immaterial.

A. I think $90 a month and subsistence at first, and later $100 a month and subsistence. Some of my work was north of Sioux City, and some south of that point. My duties as assistant to Division Engineer Potter are, to read over mail that comes to the Division office, make notes on it before submitting it to Division officer, and attach my memoranda giving my opinion as to all projects, specifications, plans and estimates. In some cases I write out endorsement, and have it ready for the officer to sign; where there is no ques-5336 tion what action shall be taken. Where it is too voluminous, I write it out and sign it, and it goes forward to chief of engineers over my own name; the Division Engineer referring to accompanying notes of Assistant Engineer Woermann.

Q. What are the duties of Colonel Potter as Division Engineer as to rivers, places and so on?

Objection; not cross-examination.

A. There are seven districts in the Western Division, as follows: St. Paul, Rock Island, St. Louis, Little Rock, Vicksburg, Kansas City and the second Chicago district, which includes from one to seven or eight rivers and canals or in all about 35 rivers and canals.

The St. Paul office has charge of the Mississippi, above St. Paul; also the Minnesota river, and St. Croix river.

5338 As to Potter's duties in reference to these various districts as Division Engineer, all projects, plans, estimates, specifications, examinations and reports forwarded him by district officers pass through office of Division Engineer for examination and recommendation before going to Chief of Engineers for his endorsement. I look them over before the Division Engineer does. For illustration, yes-

5339 terday I submitted plans and specifications for a movable dam, and for lock gates at lock and dam number 6 on the Ouachita river, on which I spent over a week. Potter remarked he had no time to go through it himself, and if I had gone through it thoroughly, he would endorse it, stating he recommended approval and call attention to the accompanying notes by me. Those consisted of a volume of specifications and about seventeen sheets of drawings. They were sent in by the district officer at Vicksburg. I passed them with my suggestions.

5340 I was employed on the Hennepin canal, January 1st, 1891, under U. S. Assistant Engineer Wheeler, and part of the time under Assistant Engineer James C. Long.

From January 1, 1891, to July, 1892, I was under Engineer Wheeler. My duties during that time were to have charge of parties making surveys for the location of the western section of the Hennepin canal around the lower rapids of Rock river and in connection with the platting of notes and in preparing of plans and estimates. I presume that two-thirds of the time I was in the field, I cannot tell definitely as to that. Mr. Wheeler determined where the surveys were to be made. He had general charge and directed me as to all that I was to do, as to the running of lines and things of that sort.

As to whether I would say that I was a surveyor at

5341 that time I would not designate it in that way. It was more than simply running of lines. The man in charge of the party had to use judgment as to where to run them. It was the work of an engineer. The lines were being run for the location of the canal, and the location of two dams across Rock river in that vicinity, the location of the locks, bridges, culverts and Taintor gates. As to whether I submitted the results of my survey to Mr. Wheeler and he determined where these locks and dams would go in, would re-

ply that his recommendations were subsequent to mine naturally.

As to whether Mr. Wheeler was not in charge of the work and he simply an engineer under the district engineer, would say in a case in which the United States is one of the parties I do not like to discuss the relations between the assistant engineer and the army engineers.

5342 Q. There is a distinction is there not between the assistant engineer and the army engineers, what is that distinction?

A. Well, the principal distinction is the one you yourself enumerated.

Objection; incompetent, immaterial, irrelevant, not proper cross-examination.

A. The army engineer is educated at the expense of the government and has a permanent position for life; the civilian engineers are educated at their own expense and are kept only so long as their services are satisfactory and are required. The army engineers are the ones that are responsible to the government and have general supervision over these various works that are being carried on by the government, and the assistant engineers are subject to the supervision of the army engineers. Assistant Engineer Wheeler on the work on the Hennepin canal was then, and is now, subject to the army engineer in charge of the district in which the canal is located. As to whether the district engineer is responsible for all of Engineer Wheeler's work, would say I don't understand it that way. I understand it that if anything goes wrong the army engineer very

5343 frequently places the responsibility on the assistant engineer; if everything goes right he does not.

Q. What compensation did you receive for this work under Assistant Engineer Wheeler?

Objection; incompetent, irrelevant and immaterial.

A. Began at $100 a month and subsistence in field; then $125, and later $150 and subsistence in field; most of the time I was on Hennepin canal, received $150 and subsistence. From July, 1892, to November, 1895, was resident engineer in charge of construction of guard lock at head of lower rapids in Rock river; of construction of the fourth and fifth miles involving construction of 4000 feet of canal in bed

5344 of Rock river; construction of Taintor gates at mouth of Mill creek, and two dams across Rock river at head of rapids. Miscellaneous earth work, rock excavation, levee

work, pile driving and so forth. Was responsible to Assistant Engineer Wheeler.

Q. He in turn was responsible to the district engineer?

Objection; incompetent, irrelevant and immaterial.

A. Yes, sir. The section of this canal around the lower rapids, completed in November, 1895; some work done on it after open to navigation. I had charge of it during that period; completed the rip-rapping of banks, and improvement of lock grounds, and dredging outlet into the Mississippi at the lower end and into the Rock river at the upper end; looked after the operation of three locks and two bridges, Taintor gates, and all other structures connected with that portion of the canal.

5345 Some commerce passed through from November, 1895, to July, 1896. Cannot say definitely how much. On the government work I had a steamer and some barges. There were some steamboats from Rock Island and Davenport that transported coal from the coal mines on Rock river over to Davenport, Rock Island and Moline.

Q. How much tonnage would you say they carried, give us some idea of what it was?

Objection; incompetent, not proper cross-examination, irrelevant and immaterial.

A. There were two or three boats towing coal, each with about two barges; barges holding 80 to 100 tons.

5346 In July, 1896, I made survey for dam across Rock river, under Wheeler. I made topographical survey, staking out the flow line, describing various tracts of land overflowed and preparing plats and descriptions of them. Dam located across Rock river between Sterling and Rock Falls, known as feeder dam for Illinois and Mississippi canal.

In November, 1896, engaged in dredging on Chicago river under Assistant Engineer G. A. M. Liljencrantz, the same gentleman who has testified in this case. I took soundings of river, determined places dredging was to be done, saw that dredges got there, and took material out, saw that they did not take too much, measured the scows, kept track of each scow, if it was not full, made deduction, saw that it was taken out of the river into Lake Michigan, and made up

5347 monthly estimates on which the contractors were paid.

Q. What compensation did you receive in that capacity?

Objection; incompetent, irrelevant and immaterial.

A. $90 or $100 per month. That was the period immediately following veto of river and harbor bill by Cleveland. Government engineers were very lucky to get any work at all. Only a very few were retained.

Liljencrantz was under Captain Marshall, in charge of this district. I was transferred from Illinois-Mississippi canal because there was no more money to prosecute the construction; was retained during the interval by employment on Chicago river. When money was again available, went back on the Illinois-Mississippi canal. Am still in govern-
5348 ment service. Was in employ of government on that canal during most of 1897, subsequent to May. Made surveys for location of canal from Mineral, Illinois, west to Rock river. Then was resident engineer in charge of various sections; part of time miles 24 to 28 inclusive, on eastern section; part of the time on construction of feeder south of Rock river, and in charge of other portions of canal. Was under Assistant Engineer Wheeler, and part of the time under Long. Marshall was army engineer in Chicago in charge of district.

Q. What was your compensation for this work?

Objection; incompetent, irrelevant and immaterial.

5349 My compensation, as I recall it, was $150 per month and subsistence while in the field throughout this period.

It would be proper to say that from January 1, 1891, until October, 1902, I was employed as the assistant engineer of the United States in reference to various government work; that part of my time, with the exception of the four months, was work upon the Hennepin canal, otherwise known as the Illinois and Mississippi canal, excepting for some minor outside work which I did for various parties during that period. I did other work besides my professional work for the government service during these eleven years. As to how extensive that work was, would say it was mostly in connection with drainage work, making surveys and estimates for drainage. I was employed regularly by the government at a compensation varying from $100 to $150 and subsistence
5350 during these eleven years; the other work that I did during the eleven years was quite irregular, I cannot give you any definite statement as to that.

As to whether it was so extensive that I was obliged to secure a furlough from the United States in order to engage in it, will say that occasionally I secured leave of absence on smaller pieces of work, I would do it after government hours

or on Sundays or holidays with the exception noted. With the exception that I noted it would be fair to say that practically all my entire professional experience from 1891 to 1902 was in reference to this construction work on the Illinois and Mississippi canal.

Q. The only other experience prior to 1902, Mr. Wierman, was carrying a line on the Missouri river survey, was it not?

COUNSEL FOR DEFENDANT. That is not a fair statement of what the witness said.

COUNSEL FOR GOVERNMENT. If it is not he may correct it. Read the question.

(Question read.)

5351 A. I would say instead of level line, I would say surveys and computations on the Missouri river. The testimony clearly shows it was not limited to a level line, although that was the principal part of it.

As to how far I was personally responsible in any of these enterprises for the lines that we ran, I would say I was responsible for these to the extent of my job. In every case my work was under the supervision of the district engineer of the United States. It might be stated that the United States would look to the district engineer as the person responsible for the work that I was doing, although as I stated before the army engineer holds his job for life so that it would admit of some modification. The construction work on the Hennepin Canal was begun in July, 1892, and completed in 1907. The length of the main line of the canal is 77

5352 miles, and of the feeder about 29 miles.

From 1902 to 1905 I was employed by the United States again in charge of the survey for the 14-foot waterway from Chicago, Illinois, to the Mississippi. My superior was nominally a board consisting of five engineer officers, of which Colonel Ernst was the chairman. It was practically under Col. O. H. Ernst. The district engineer at the time was Lt. Col. Willard when the survey was started.

As to who were the other four members of the board, would say that two of them I never saw but once, and that was when I was appointed. Two others whom I saw oftener were Maj. Thomas I. Casey and Col. W. H. Bixby. The personnel of the board was changed on two occasions; once on account of death and once of account of retirement. Col. Ernst did not succeed Maj. Willard on the board. Maj. Willard was not

at one time a member of the board. My headquarters
5353 were at Peoria after most of the field work was completed. The field work was completed by March 1, 1904. My headquarters prior to that time was upon one of the quarter boats upon the river. I moved my quarter boat along with the parties, all the way from the mouth of the river up to La Salle but the quarter boat never went above La Salle. I had occasion to collect a great amount of data in connection with the lower Illinois river, and this data was used by me in the preparation of a report to the Board of Engineers. I have secured data from the Sanitary District in reference to the Desplaines river and the Sanitary District channel and this was made use of in making out the report which I made to the Board of Engineers. I secured from the Sanitary
5354 District gauge readings at a number of points, the points being indicated clearly in my report at the top of each table. These gauge readings were all above La Salle. I used all the gauge readings of the Sanitary District above La Salle, from there to Chicago that they gave me. I presume they gave me all they had. My official title at this time was an assistant engineer, I should add to that that Col. Ernst presumed that he was appointing me an assistant engineer when I took charge of the work, but the civil service commission notified him that I could not be appointed to that rank until I had passed an examination, so as soon as the work permitted I took that examination and passed it and so got the higher rank. I would say the Sanitary District furnished me all their records and data in reference to the upper Illinois and Desplaines river that I asked for, but as to whether they gave me all they had I cannot say.

5355 As to whether I made very little other investigation above La Salle in reference to the upper Illinois or the Desplaines river in the preparation of my report, would say that I can hardly answer that by yes or no. The previous board, known as the Barlow board, had made a survey from Joliet to La Salle in 1899 and 1900, Col. Ernst decided it was not necessary to make a resurvey and instructed me to correct the maps of the Barlow board, and for that purpose I had parties go over the territory and we did make a great number of corrections and additions on every one of the sheets. Of course the triangulation work and precise level work was carried through under my direction, because that had not been done in connection with the previous survey. On that precise

level work I was not personally present, I had parties in the field who ran these levels and made reports to me which I received from time to time. From October, 1905, to July, 1908,

I was not in the government service. A part of the
5356 time I was in private practice at Peoria and part of
the time on the construction connected with the Economy Light and Power Company work at the mouth of the Desplaines.

As to when I first commenced working for the Economy Light and Power Company, I would say I did not work direct for the Economy Light and Power Company until after the state case came up. I was in charge of the construction at the mouth of the Desplaines river under Chief Engineer Daniel W. Mead. My first employment for the Economy Light and Power Company was in January or February, 1908. From October, 1905, to January, 1908, I was engaged in private practice at Peoria. When I went to Peoria in October, 1905, I opened an office as consulting engineer in the Observatory Building and was employed in making examinations, surveys and reports.

As to whether I acted a great deal as an expert witness
5357 in litigation in cases in which the flow of the Illinois river
was involved and particularly in suits against the Sanitary District, will say that I acted in that capacity in connection with the suit of W. R. Curran against the Sanitary District. I prepared data for a number of other cases against the Sanitary District.

As to whether that data which was used was prepared chiefly from the data which I obtained from the Sanitary District at the time I was connected with the Ernst board, I would say you need not put it that way, it was prepared from the data that I became familiar with in making the 14-foot waterway from Chicago to the Mississippi river.

Q. The principal contention in those cases was the fact that the Sanitary District had turned a lot of water into the Illinois river which was causing this damage, was it not?

Objected to as incompetent, irrelevant, immaterial and not proper examination.

A. Yes, sir.

Q. Mr. Woermann, why did you leave the government service in October, 1905?

Same objection.

A. Because I objected to taking the work to which
5358 the government wished to assign me.

Q. At the time you left the government service did you have this line of work in mind at Peoria?

Same objection.

A. No, sir.

Q. Did you have any other line of work in mind?

Same objection.

A. I cannot say that I had any particular line of work in view. I should modify that, I should say that I did have in mind that my experience on the river there would make me particularly well qualified to go into the question of draining those large swamp areas on the Illinois river. I was pretty well posted as to the flow on the Illinois river and as to the effect that the turning in of the Sanitary District water had had upon that river.

Q. Prior to your leaving the government service had you been approached by any one in reference to acting as an expert for any one in case they got into litigation with the overflow?

Same objection.

A. I cannot say definitely. I think it was about the
5359 time I left the government service that I was approached by Judge W. R. Curran in regard to assisting him in the matter of damage suits against the Sanitary District.
5360 To go more into detail, the nature of the work that I did while in private practice at Peoria, the principal work that I did at that time was in the capacity of resident engineer in charge of the construction of the McKinley Bridge over the Illinois river at Peoria. In addition to that I made a number of surveys—land surveys—mine surveys, reports and examinations of a number of re-enforced concrete structures including the Majestic Theater; re-enforced concrete stacks for the Peoria Marble Company; another for the gas company; two for the Illinois Traction Company. I did not design this bridge referred to, I erected the bridge.

As to whether it is not a fact that this bridge was erected by private parties under contract with the Illinois Trac-
5361 tion Company, I would say certainly. I have stated that I was the resident engineer in charge. To state just what my duties were in reference to the bridge would say that I made a survey in the first place to determine the best location for bridge; made borings in river bed to get data from which piers were designed and drawings prepared; gave

lines and grades for piers, and approaches, superintended construction and inspected material; took greater part of my time for over a year.

Q. What compensation did you receive for this work?

Objection; incompetent, irrelevant and immaterial.

A. Received $200 a month for my superintendency of the bridge work.

Q. What was the total remuneration received by you
5362 while in practice outside of Government service at Peoria?

Objection; the same.

A. Could not state that. Do not think it fair to say was obliged to give up private practice, because my office as consulting engineer was not a financial success. This all depends upon what one considers financial success. Think it fair to say I was not satisfied with it, or, of course, would not have taken something else.

Q. Would it be fair to say, that you received greater compensation during your private practice at Peoria, than you received while you were in the government service?

Objection; the same.

A. Well, they were so nearly the same, I do not know off hand; it fluctuated.

5363 Took charge of construction work of Economy Light & Power Company, in July, 1908, but I was employed with Chief Engineer Mead, in July, 1907. Work was in connection with dam, power house, levees, bridges and other work. I was an expert witness on behalf of defendant in case of *People* v. *Economy Light & Power Company.*

5364 Construction of dam was begun in July, 1907. I was first employed by the Economy Light & Power Company in January or February, 1908, when it began the preparation for the state case.

As to whether I was not in the service of the defendant prior to the institution of the state case, would say directly I was not. Indirectly I was. I was employed by Mr. Mead in the construction work. In connection with the preparation for the building of this dam. I understood Mr. Mead
5365 was in the service of the Economy Light and Power Company. Not, however, I think on a salary basis. Such work was done on commission basis. The basis of my arrangement with Mr. Mead was on a salary.

Q. What was the salary?

Objection; incompetent, immaterial and irrelevant.

A. $200 a month.

People v. *Economy Light & Power Company*, I believe, was commenced in December, 30th, 1907. At that time por-
5366 tions of the dam had been erected; the earth portion at the north end. The only portion extending into river was coffer dam. In state of nature, at low water river at that point was 250 to 300 feet wide; at high water probably 2,000 feet. Coffer-dam situated on north or west side of river, right side as you descend. Coffer-dam extended into river at up stream corner probably 150 feet, from low water shore line. That is about 150 feet from the river bank. Cof-
fer-dam is two or three hundred feet above junction of
5367 Kankakee and Desplaines. The end of the coffer-dam would probably be about 150 or 175 feet from opposite bank before that was blasted away. Did not measure how much was blasted. Current carried away a great deal. As to the present condition of the river at that point, as compared with what it was in a state of nature, as to the depth of the portion of the river between the coffer-dam and the opposite shore and the entire river as it was in a state of nature, will say I have not seen that point for two and one-half years. Then the river was about half as wide, possibly a little less than half at that up stream corner prior to putting the coffer-dam in the river. Bottom of river bed is
5368 rock, limestone rock, sand stone and glacial drift. North bank consisted of black loam underlaid by glacial drift and sand stone, and south bank probably similar; never excavated into any rock on that side. Had not gotten to that stage. Made a number of borings, test pits down to the rock. The bank is low on both sides, back to the Illinois and Michigan canal. The canal cut across a low projecting point by the dam. There must have been 250 or 300 feet between canal and river at that point. The balance of the two or three hundred feet, I spoke of as being the width of the river, in times of high water, would come off of the other side.
5369 I am not certain that I recall, not certain, but I think that I have the data as to the height that it was proposed to erect this dam above the low water mark. The crest of the spillway was at elevation 77.0 Hennepin datum.

As to how that would be interpreted in the language of the low water in the state of nature at the mouth of the Des-

Plaines river will say I can give you that if you have here the profile which I prepared in connection with the 14-ft. waterway survey.

Whereupon counsel for the government requested the witness to refresh his memory upon the subject and answer the question at a later time.

My duties in connection with the preparatory work under Mr. Mead at the site of the dam were that I staked out the work and tested the materials; kept track of the time whenever the work was done on force account, and kept track of the quantities; in general, saw that the specifications were carried out and complied with.

5370 I did not prepare the plan of the dam, that was prepared by Mr. Mead. Mr. Heyworth had the contract for the construction of the work. I was not working under Mr. Heyworth and was not in his employ. Prior to January, 1908, during my employment upon the construction work for the proposed dam of the Economy Light & Power Company, I was under the supervision and direction of Daniel W.

5371 Mead. I presume Mead had a contract with the Economy Light & Power Company, I do not know what their relation was. I know that Mead was Chief Engineer, and I was under him to see that the work was carried out in accordance with plans and specifications. Mead was located in Madison, Wisconsin. From July, 1908, to February,

5372 1909, was in employ of United States as assistant engineer, preparing plans and estimates for 14-foot waterway from St. Louis to Cairo. I was an assistant engineer of the United States. Was employed under the direction of engineering board, consisting of Bixby, Townsend, Warren, Richardson, and Ritter. Col. Bixby, who was district and division engineer, was my immediate superior in the service. He was located at Chicago when I began work; came to St. Louis, October, 1908.

Q. What compensation did you receive during that time, as assistant United States engineer?

Objection; incompetent, irrelevant and immaterial.

A. At first $225 per month, and later $250 a month. From February, 1909, until present, have been employed as assistant engineer to division engineer at St. Louis; first under Bixby, then Colonel Fisk, and recently Lieutenant Colo-

5373 nel Putter. Hold that position at present. My present compensation is $300 per month. Potter is district and division engineer.

I prepared to testify in this case a short time before I came up here on April 14th. I worked at it irregularly outside of Government hours; perhaps devoted 20 or 30 days to the preparation. Read Cooley's testimony. Spent some time checking up his work and preparing my own technical tables.

5374 Q. Did you originate the points made by you in reference to Mr. Cooley's testimony or were they suggested to you?

Objection; incompetent, irrelevant and immaterial; does not indicate point counsel has in mind; impossible for witness to know.

A. Perhaps I originated some of the points. Am not sure I understand the meaning of question.

Q. Take for example table Cooley introduced into the record with reference to number of days at which the Riverside gauge stood at a certain height. Was it suggested to you that that was inaccurate or that another result might be obtained if you left out the winter months, or did you figure that out yourself? Did you suggest that to counsel?

A. Well, I made suggestions of that kind. Do not know whether they were thought of independently of that or

5375 not. I think they were. At least I know some were. After examining Cooley's testimony, and that of other experts in this case, I made some suggestions to counsel as to what additional data might be introduced, and what technical tables worked out, to show that the Government was erroneous in their contentions. I consulted counsel in regard to engineering features. Cannot say that I did as to proper handling of case. They consulted with me as to engineering features. I was compensated for my work for preparing to testify in this case. I have been and expect to be paid from $25 to $50 a day, depending on nature and continuity

5376 of employment for my service as an expert witness in this case. That applied to my service prior to taking the stand as an expert witness. Cannot tell from that what amount of time I spent in preparing to testify without looking up my records. Made no effort to fix those times or periods in my mind. Am unable to repeat the amount received, without referring to my records. I think it would

5377 be between $800 and $1,000, which covers my entire service to date, in connection with this case.

Whereupon the attention of the witness was directed to House Document No. 263, being report upon the 14-foot waterway, pages 16 and 41, and following, as set down in transcript

1473 (Abst., 624), 1474 and 1479. Part of that report written by me extends from page 21 to 70, inclusive. Of the
5378 Appendix A-9, that is my report proper. Then most of these appendices were prepared by me, and some others which were not published.

Whereupon, at request of counsel for complainant, witness read the paragraph entitled "Velocity of current in the Upper Illinois and Lower Des Plaines Rivers During Extreme High Water," page 40 (reading):

> "In order to ascertain whether the currents which obtain in the upper Illinois and lower Des Plaines rivers during extreme high water would prohibit navigation at such times, the velocities were computed at 16 points between Utica and Joliet for the highest water on record for each station. These results, which are shown in the following table, are based upon the following field measurements, and are entirely independent of any assumptions or theories."

The table which appears on page 41, and also set out at page 1476 of the record (Abst., 626), is the one referred to in the passage just read. At page 41 of this report, after stating the various velocities, occurs this sentence: "There are two exceptions to this, viz., at the mouth of the Desplaines river and
5379 at Treat's Island, where it is impossible to compute the velocity, as there are not sufficient data on hand. It would probably not exceed 4 miles per hour, at either place, for a distance of about one-half mile," which refers to this table of velocities computed here. These statements which have been called to my attention were made in my official capacity as Assistant United States Engineer. I stated in substance on those two pages, "that these velocities which obtain during high water are prohibitive only in two places, to-wit, below the Marseilles and Joliet dam." I testified on my direct that the table to which my attention has been called, referred to high waters that would obtain if the conditions were changed as proposed in the fourteen foot waterway report. I see nothing to be reconciled between that
5380 statement with the passage to which my attention has been called, particularly this statement beginning, "These results which are shown in the following table, are based upon the following field measurements and are entirely independent of any assumptions or theories."

Q. If the waterway had not been constructed they could not measure them, could they?

A. Why not? If you get the bottom as it existed, and the water surfaces as they existed in a state of nature, and then drew in your proposed bottom for whatever portion of the river that covers. You have got to have the survey data to start from.

Q. This statement says that these are actual measurements and not assumptions?

COUNSEL FOR DEFENDANT. No, it does not say so, it says "based upon the following field measurements." It speaks of them also as computations.

COUNSEL FOR COMPLAINANT. He says they are in no way assumptions. It says:

> "These results which are shown in the following table are based upon the following field measurements and are entirely independent of any assumptions or theories."

COUNSEL FOR DEFENDANT. Just above that.

5381 COUNSEL FOR COMPLAINANT:

> "In order to ascertain whether the currents which obtain in the upper Illinois and lower Desplaines rivers during extreme high water would prohibit navigation at such times, the velocities were computed at sixteen points between Utica and Joliet for the highest water on record for each station. These results"—namely, the computation of the highest water on record at each station—"which are shown in the following table are based upon the following field measurements and are entirely independent of any assumptions or theories."

COUNSEL FOR DEFENDANT. But you put a wrong construction upon it. The passage does not so state.

COUNSEL FOR COMPLAINANT. Just let the witness answer.

COUNSEL FOR DEFENDANT. When you are misstating, I object to the question.

COUNSEL FOR COMPLAINANT. Well, the witness may answer. Read the question.

(Question read.)

Q. Does not that report in house document No. 263 refer to actual measurements, and to the velocity as it existed at that time from the high water of previous years which they had actually measured, and not to the condition that

5382 would exist when the changes were put into effect?

A. Those velocities refer to velocities which would

obtain if this waterway was constructed. It is evident by inspection of the maps and plans that it was intended to deepen the river at many points.

As to why if I had meant the velocities that will obtain I did not put in there the future tense instead of putting in the present tense "that do obtain," and being asked why I said that these were computed from the highest waters at these 16 points and were not based upon assumptions, if it was to be upon an assumed bottom, would say that that style of composition is very commonly used. I think in a moment I can probably call your attention to some other instances.

COUNSEL FOR GOVERNMENT. I do not care for any other instances. I want you to explain that particular passage in view of your interpretation of it.

COUNSEL FOR DEFENDANT. The circumstances might explain.

The WITNESS For instance on page 44, which is the first one I notice, under locks, the third paragraph begins as follows: "The foundations of the locks rest on bed rock." As a matter of fact they did not rest at that time. It means when they are put in they will rest on bed rock. Perhaps that is not the best style of English to use, but I use it a great deal and others also.

5383 Q. What is the meaning of the sentence: "And are entirely independent of any assumptions or theories."

COUNSEL FOR DEFENDANT. Objection; misstates the record. He does not set them out as actual measurements; he says they are based upon measurements and computations here referred to in the sentence before; before that is the sentence speaking of velocities to be expected; the future tense; just what you have asked him as to why he did not use it.

A. What I mean by that is: in many cases of preliminary plans or estimates, we have not as much data as I had here. You assume some, wihch I had here determined by actual observation in the field. High water elevation was not an assumed but an observed elevation. The discharge was not assumed or a computed discharge. It had been actually

5384 measured in the field. The slopes and elevation of the water surface were known from actual observation. I still adhere to the interpretation I put upon that table in my direct. I have no further data which I procured subsequent to the publication of that report, as to the velocity which obtained at Treat's Island at the mouth of the Desplaines. Made no measurement at mouth of Desplaines or Treat's Island, subsequent to publication of report. The supplemental

data I secured at mouth of Desplaines is in field books, turned over to Chief Engineer Mead when work was suspended. It was prepared by me while working under Mead, and given to him during the employment.

5385 In house document 263, page 41, I show in second column the years in which various records were obtained. For example, at the Jefferson street bridge I show year 1904 the elevation was 533.6 Memphis datum; the area of the cross section 2,016 feet; discharge 22,000 feet per second; the feet per second of the mean velocity 10.91; and the miles per hour 7.4 miles per hour.

As to whether that refers to the year 1904 when that velocity of 7.4 obtained at Jefferson Street bridge in Joliet, would say that that volume of 22,000 cubic feet per second was what occurred in 1904.

As to whether that volume of 22,000 cubic feet, running through that cross section at Jefferson Street bridge in 1904 produced that velocity of 7.4 miles per hour, would say that it does not say that that was the cross section in 1904.

As to whether it would be a fair interpretation to say that in 1904 with the discharge of 22,000 cubic feet per second there was a velocity of 7.4 at Joliet, I would say that if you had that profile here I might throw some light on the subject. As far as I recall now, I think there was ex-

5386 cavation in the bottom at that point. At the mouth of Des Plaines river and at Treat's Island are the two points where the greatest difficulty is experienced in passing down the river on account of the shallowness of the water. It would make a difference as to whether it was high water or low water. Assuming for the purpose of answering that the condition in the Des Plaines river is the same today as it was two and a half years ago when I was familiar with it, I do not think there was any particular difficulty about insufficient depth for skiff two years and a half ago at either point.

5387 I computed the depth at these two points. As to what it is, there are no two alike—they vary. They are given on my maps which accompany house document No. 263. Photo-lithographs. As to whether this data in reference to these two points was computed by me personally or computed by engineering parties sent out by me, would say that the depth as it would have been in 1901, the first year after the Drainage Canal was opened, was computed under my direction in my office.

Q. You did not personally make the soundings at either of these points, did you?

A. I did not say anything about anybody making them. I said they were computed.

Q. Well, just answer my question if you will. Just read the question, Mr. Commissioner.

(Question read.)

A. I do not understand that question.

Q. If I understand you correctly all that was done during the period from 1902 to 1905 when you were con-
5388 nected with the Ernst Board was the adoption of the Barlow Board survey of a previous date, and making the soundings of the Barlow Board correspond with the level of the water as determined in 1901; is that correct?

A. No, sir.

Q. Then will you please explain what was done during the survey of 1902 to 1905 in reference to the ascertaining of the soundings?

A. The maps made for the Barlow Board do not give any soundings; they gave elevations on the bottom of the river. And I had the 1901 water surface computed and platted, and the depths computed from the bottom elevation, and the estimated elevation of the water surface. Removed all of the bottom elevations which were on the maps of the Barlow Board, and put on the soundings as they had been computed under my direction. The parties under my direction during the period from 1902 to 1905 did make actual soundings in the Des Plaines river. They made soundings at each of the bridges and at each of the sections where discharge measurements were taken. As to whether the maps were based not upon the soundings but upon the survey of the Barlow
5389 Board, I would not say that the maps were based on soundings of anybody. The maps contain the soundings that were computed in the way I have just described.

As to whether the maps so far as the soundings are concerned depend not upon the soundings made by me but upon the soundings made by the Barlow Board I would reply that if you insist upon using the word "depend" why, yes, but still adhere to my former remark. I personally made none of the soundings, neither at Treat's Island nor at the mouth of the river during the government survey. In 1889 Captain Marshall made a new survey and corrected the previous survey of 1883. Work done under his direction. Entirely new survey made from Joliet to Lake Michigan. Below Joliet

maps of Benyaurd survey of 1883 were utilized. Under
5390 Marshall, supplemental work was done at Treat's Island; at Marseilles gauge readings taken, high water marks determinel, and so forth. Have no personal knowledge whether Barlow's survey was new one, or was an adaptation of Sanitary District survey of 1894, by Keating, so far as Desplaines river is concerned. That is I have understood from report and others connected with it.

The only reports I have ever made over my signature, which are published by the government as official documents, are on the fourteen-foot waterway under the direction of the Ernst Board, and fourteen-foot waterway from St. Louis to Cairo by a lateral canal; a report for canal by means of movable dams and locks from St. Louis to Cairo. Other reports were made by me to my superiors and adopted by them in
5391 their reports. Only published document have ever made in reference to Desplaines was fourteen foot waterway report to Ernst Board. I made an unpublished report on Desplaines river, on which 1911 board report is based; plans and estimates for an eight and nine foot waterway from the lakes to the gulf under direction of Bixby Board. Has never been published over my name. Figures which appear in printed document issued this year are prepared by me.

In 1889 I took a rowboat and descended the Desplaines from Adams dam to the mouth, down to the Illinois
5392 river. Made one trip in 1889 between those points. It would be a fair interpretation to say that in 1904, with a discharge of 22,000 feet per second, there was a velocity of 7.4 at Joliet. It would not be the same as applied to other points given in table, for example, 1¾ miles below Brandon's bridge 1904 velocity 2.3 feet, because at Jefferson street bridge did not contemplate using river as navigable waterway. Simply increased depth to make up for what I cut off side to get 160 feet width of canal. Deepened natural bed enough so would not increase natural velocity. Was no reason why United States should be put to expense of reducing natural velocity because it was not to be used as navigable waterway.

The velocity given there of 2.3 miles per hour at 1¾ miles
5393 below Brandon's bridge, would not be the velocity in the unchanged state, because at that point it was intention to deepen bottom. It was intention to deepen bottom at Jefferson street, but there the bottom was deepened only sufficiently to compensate for what I took off side to secure width of 160 feet for waterway. Illinois-Michigan Canal only 60 feet

wide; had to add 100 feet to that; reduced width of river 100 feet. Table does not refer to past tense at Jefferson street, and future tense at 1¾ miles below Brandon's bridge. It shows what velocity will be when 14-foot waterway is carried out on plan given in report. At Jefferson street bridge it happens it is past tense as you expressed it; but it is future tense in every case.

Table does not represent actual computation of what velocity has been, but represents computation of what it will be under changed condition, if 14-foot waterway propo-
5394 sition is put through. Do not recall that I computed any preparation of that report to Ernst Board what velocities actually were at those various points. Computed future velocities on basis of data stated in context, the floods of various years set out in table. Volume shown in table of volumes, represent actual volumes of respective years. For example, the Utica Highway Bridge shows discharge of 70,952 and so on, including volume of 22,000 at Jefferson street and 22,000 at Brandon's bridge. Table shows actual volumes that flowed through in years respectively shown opposite those volumes. Velocities are those which will result if pro-
5395 posed improvement is put through.

In trip I made in 1889 part of boat was always in water from Adams dam until I reached La Salle. Was obliged to get out at one point; struck at others and shoved off with oars. That was above head of Treat's Island where I got out. Went past island in left hand channel. Went down Desplaines at point where it enters into Kankakee, where dam in question is proposed to be located. Was badly scared there; did not turn over, but thought we would; water swift and waves high, and boat shipped much water going
5396 through high waves. Time of trip was July; began employment on first of June. In 1904 went in skiff from Joliet to La Salle. Put boat in water at Joliet, at McDonough Street Bridge. Went from there to Brandon's bridge
5397 in river itself. Passed Treat's Island and through channel at mouth of river. Do not think we struck bottom anywhere. Had to keep sharp lookout to keep boat from turning over in swift water. It was in spring; don't remember the month.

Referring to Exhibit No. 2, a list of bridges across Desplaines from Irving Park Boulevard to the mouth, appearing at transcript 2494 to 2496 (Abst., 1037, 39), Irving Park

Boulevard is a road that runs out from Chicago at south end of Graceland Cemetery.

5398 Distance is given in my table of distances from mouth to each bridge; that would be 55 miles from mouth of river. Point where Illinois-Michigan Canal and Sanitary District canal come close to Desplaines for first time after leaving Chicago is 45 miles from the mouth. If question can be interpreted as referring to Summit, that would be only 40 miles from the mouth. From the map, know where old portage road was, or portage slough, where it came into Desplaines.

5399 Dam No. 1 is above Jackson street bridge, 15.3 miles from the mouth. So if Dam No. 1 were inserted on the table it would come between Jackson street bridge, which is No. 9 on the list, and Ruby street bridge, which is No. 10 on the list. So that all bridges or obstructions in the Desplaines between dam No. 1 at Joliet and the mouth, are the aqueduct piers, Smith's Bridge, Treat's Island Bridge, or Millsdale Bridge, Brandon's Bridge, and five bridges in Joliet. Remaining 44 enumerated in list lie above dam No. 1 at Joliet. In 14-foot waterway project, it was not designed to use the Sanitary District channel from Chicago to dam No. 1 at Joliet.

5400 The part of the Desplaines river to be used was from Ruby street to the Sanitary District power house at Lockport. There was no extension of the Sanitary District channel from Lockport to dam No. 1 at that time; there is no extension there now with 14 feet in it.

Q. How deep is it from Lockport to dam No. 1?

Objection; incompetent, irrelevant and immaterial.

A. That would vary according to the volume of water. Do not know what average depth would be.

If the Sanitary District channel were used from Chicago to Lockport, and the extension of the channel from Lockport to dam No. 1 at Joliet, the bridges and other obstructions I have enumerated as lying above dam No. 1 at Joliet, would have no bearing on the question as to whether there was a navigable waterway between Chicago and the mouth of the river. The table does not relate to that. The

5401 heading is "Existing bridges across Desplaines river."

To compute velocities at points mentioned in table on page 41, so far as those points are in the Desplaines river, as they were in years mentioned in table, would be a voluminous

computation; have not data nor time to do it at present; nor between now and tomorrow morning. If one man could do things like that in an evening, would not need 140 men working for him on a job as I have had.

5402 With map before me, as close as I can give it at present time, crest of proposed spillway was about 19 feet above low water of 1883, or 16 feet above low water of 1901. The crest of spillway is 77.0 feet Hennepin datum. Hennepin datum is 435 above Memphis datum. If I have data with me will figure out and give low water elevations and crest of spillway according to Chicago, Hennepin and Memphis datums.

5403 The notation near mouth of Desplaines Woermann Exhibit 1, which says: "Proposed Dam of the Economy Light & Power Company," the dam as there drawn projects some little distance beyond southern bank. Dam has never been built across stream so as to stop flow. Plan says "Proposed." Water of Desplaines was continued

5404 to pass in a restricted channel on southern side of cofferdam, so far as Economy Company's works are concerned. I said river was about 250 to 300 feet wide at its mouth; that is not built across the narrowest point. Not correct that it is 180 feet wide at point where dam is proposed to be erected and between 250 and 300 feet wide at mouth. These widths are natural low water widths; river not now natural condition. Width at present time where dam is proposed to be erected is 250 to 300 feet; probably at point where dam is to go 275 feet; a little narrower above, a little wider below.

5405 Q. You would not call the proposed dam at the mouth of the Desplaines river an obstruction to navigation, would you?

Objection; incompetent, immaterial and irrelevant and not cross-examination.

COUNSEL FOR COMPLAINANT. Let record show he has produced this map showing the obstruction.

COUNSEL FOR DEFENDANT. It says on the map "Proposed."

The WITNESS. Title says nothing about obstructions. It says: "Map of Desplaines river from Lockport to the mouth based upon the government surveys of 1867, 1889 and 1899." I put on the map several additional data, to show various obstructions that have been and now are in the Desplaines.

Where they are no longer in existence dates are given. Explanation further amplified in my direct.

5406 Assuming that there is navigation, the proposed dam of the Economy Company is not an obstruction to navigation, because it is not carried along far enough. The cofferdam is a partial obstruction. It was put in by defendant in this case.

My authority for labeling Beard's dam 1833, was the testimony in the State case. Think I took it from testimony when I drew map. Beard's dam was erected for power purposes. Remains were still there before we erected our cofferdam, that is, one end on the south side.

5407 Have one reference to date of Beard Dam; the testimony of Jeremiah Collins, abstract p. 1052, record, 3433, State case says: "I know Johnny Beard. He built a dam and sawmill about 1836 or 1837." With longer search can find other references. Do not know when dam was re-

5408 moved. Was out when I went down in 1889. Without looking up date I am unable to say when abandoned aqueduct of Kankakee feeder was constructed. All that remains in river today are abandoned piers. Do not think it was taken off; it fell off and was washed off. Portions were there when I went down in 1889; no portions are there today. Distance between piers fifty feet. A boat 49 feet wide could hardly get down through there. One 45 feet wide could,

5409 if they put a line out to hold themselves back or backed water as they went down. If there is sufficient water there is no obstruction of passage of boat today, provided it is sufficiently narrow to allow it to get through piers without striking.

5410 The next obstruction shown on map is Smith's Bridge, a traveled bridge. It is just above mouth of DuPage river. The river is narrowed at point where bridge crosses it, by abutments. Bridge there in 1889; that is as far as personal knowledge goes.

The Millsdale or Treat's Island bridge which goes from Treat's Island to south bank of Desplaines is a traveled bridge. Not there in 1889; been built since.

5411 Smith's bridge consists of one 60-foot and two 90-foot spans. On the two channels there is a very small island between the 60-foot span and the 90-foot span. At low water bottom is dry under 60-foot span. There are rapids under 90-foot spans. Water not deep. As to whether

the river above and below Smith's bridge is not much wider than 240 feet, will say it is not. Width does not cause rapids there. River is wider above bridge than at bridge. Do not know width just above bridge; would estimate it at 250
5412 or 300 feet. The bridge is 240 feet. That takes into account width of piers. Spans practically come together over piers. Lengths I give are lengths of steel trusses. River is somewhat wider above bridge; I do not know how much. At high water distance from water to bottom of bridge is very little. At that time bridge is isolated; water runs over both approaches. There is probably 12 or 13 feet clearance when the water is four feet deep.

5413 The two bridges at Treat's Island are known as Millsdale bridge; were built at the same time across two channels. Bridge over north channel about a quarter of mile from the south channel, which is left hand channel going down river. Each channel means left hand channel going down. There is a clearance of about 11 or 12 feet under Millsdale bridge when depth of water is four feet. Only one span at Millsdale, 100 feet wide in the clear. That is the length of the span. Clear width between piers probably 95 feet.

My recollection is that the Millsdale and Smith bridges are both Pratt trusses; steel bridges.

5414 The dam known as Treat's dam, labeled on map as near Treat's Island, is across both channels. It was situated some distance down on the island across two branches of the north or east channel and went across the south channel. My authority for labeling it 1835 is testimony in State case. A portion of the ruins of that dam was there when I went down river in 1889; it obstructed flow of water on north side; I do not think it did in south channel. Do not know from personal knowledge that dam ever existed in south channel; never saw any remnant of it.

5415 Thomas Austin Mills, in his testimony at abstract 1030, State case, says: "The dam was near the upper end of the island. On the west channel was a little further down. The dam was about 80 rods above the mill on the east channel." He indicated it then on the may, Zarley Exhibit 1.

Referring to Lake Joliet on the map, below a point labeled "6 miles," I insert "R. R. Bridge," and the railroad extending about a quarter of an inch on either side of the lake, but not connecting with any of the railroad systems shown

on map. This bridge does not exist at this point at this time. It existed in 1889. In bad condition. There were
5416 never any piers there that I know of. It was a trestle bridge, part of which stood in 1889; did not extend across river. Could not tell you in detail at present time. Made no effort to charge my mind with that feature of it.

COUNSEL FOR DEFENDANT. Complainant's witness Stevens, at page 416 of abstract, State case, says: "The sawmill at Treat's Island was commenced in 1836 and finished in 1837. The grist mill was built shortly afterwards."

5417 The WITNESS. The Benyaurd survey of 1883, I think, shows that bridge across Lake Joliet; it may be there was a pier; I am not certain.

I refer to the railroad bridge that counsel was just asking about. It is in Lake Joliet and Lake Joliet is about 250 feet wide at that point.

As to whether practically all that I say in 1889 was an abandoned suspension pier on that side, I would say I do not know what you mean by an abandoned suspension pier. I did not say it was a suspension bridge.

COUNSEL FOR DEFENDANT. He said is was a trestle bridge.

COUNSEL FOR GOVERNMENT. Well, there was none of the bridge itself left, was there?

5418 A. This trestle bridge was left partly extending over the lake. I would not say how far it extended.

As to whether I am able from what I saw in 1889 to tell as to whether the bridge as a matter of fact ever did extend over across the lake, would say the evidence was conclusive I think in that point; it would be pretty irrational to suppose that anybody built a bridge out part way from each bank and then failed to connect it in the center. I was told of the bridge having been used by the quarry people there.

Brandon's bridge was one 130 foot span and two 148 foot spans. The vertical clearance in a four foot water depth would be about eleven or twelve feet. Bridge was there in 1889. Do not know how long previous to that time.

McDonough street bridge is just at south portion of City of Joliet, half mile north of south boundary in the city
5419 limits. Do not know when it was erected; it was there in 1889. There were three 120 foot spans.

HOBART W. HARPER, a witness on behalf of defendant:

Direct Examination.

I live at Joliet; I am a professional photographer.
5420 Have been in business twenty-four years. I took pictures of Desplaines river in 1908; I have them here. They are the pictures in the hands of counsel for the United States. I took them on September 12, 1908, at various points between Lockport and Romeo. They faithfully represent portions of the river which they apparently represent on picture. The picture you now show me is looking up the river at a point where the river turns to the west.
5421 With reference to the river at the time the picture was taken, I stood as near the center of the bed of the stream as I could judge, looking north. That fairly represents the bed of the stream at the time that picture was taken. Cannot tell exactly at what part of the Desplaines river that picture was taken, or the exact distance from Lockport or Romeo, but it was on the way. We walked from Lockport controlling works to about that point from Romeo, and took views as we went along. I should judge that was about half way between Lockport and Romeo. The distance between the controlling works and Romeo is about four miles I think. By controlling works I mean controlling works of the Chicago Drainage District Sanitary canal.

(Which said photograph was offered in evidence and marked "Harper's Exhibit No. 1." For copy of said exhibit see Appendix, page .....)

Objection on the ground that the portion of stream to which it refers has not been identified.

5422 Photograph which has just been handed to me was taken looking south, down stream; I stood about center of river. It exactly represents the condition of the river at that point. Was taken on the same day as previous photograph between Lockport and Romeo. As near as I can remember that was about three miles north of the controlling works.

(Which said photograph was offered in evidence and marked "Harper's Exhibit No. 2." For copy of said exhibit see Appendix, page .....)

Same objection.

5423 Picture which counsel has now handed me was taken by me on the same day as the preceding; it was taken looking north, up stream, in the bed of the stream, and faithfully represents the condition of the river at the point where taken, which was about two miles from Lockport.

(Which said photograph was offered in evidence and marked "Harper's Exhibit No. 3." For copy of said exhibit see Appendix, page .....)

Same objection and objection to these photographs on ground incompetent, immaterial and irrelevant, and because they assume to represent Desplaines above entrance of Sanitary District channel in Desplaines; do not show Desplaines river in state of nature.

Cross-Examination.

5424 This Harper Exhibit 1 was taken about two miles above Lockport. I am figuring the points of distance from the controlling works of the Sanitary District. I did not measure the distance so that it is a mere guess or assumption on my part.

As to whether there is anything that I can identify these points more fully as to just where it occurred by certain land marks along the stream, farm houses or things of that character, I will say I might be able to by going over the ground, that is the only way I could identify it, by taking the pictures with me. This exhibit (Exhibit No. 1) represents the Desplaines at a point on the river.

5425 As to whether the channel of the river is represented as over on the right hand side of the picture where the water appears, I would say I stood about in the center of the channel, probably when I took it, when it came around. I was not standing myself in the bend of the river, I was standing at the straight part of the river, the bend was farther up north. I cannot say exactly how wide the river bed was at the point where I took the picture. As to whether it was two hundred or three hundred feet, or a hundred feet. I should judge about two hundred feet. My camera was facing directly up the stream at the time I took this picture. Exhibit No. 3 was taken about two miles from Lockport. Exhibit No. 3 was taken about one mile from Exhibit No. 1.

5426 Harper Exhibit No. 1 was taken two miles from the controlling works, and Harper Exhibit No. 3 was taken three miles.

Q. I might have misunderstood you, but I understood you to say that Harper Exhibit No. 1 was taken two miles and Harper Exhibit No. 2 was taken three miles, and Harper Exhibit No. 3 was taken two miles from the controlling works. Is that correct?

A. Well, I have kind of got mixed on the pictures. Now, Exhibit No. 3, which one is Exhibit 3.

Q. This one here (indicating).

A. I won't say exactly but it is between two and three miles from Lockport, I did not measure the distances at all when I took the photographs. I cannot say how far the pictures were taken apart from each other, I do not remember. As to whether No. 3 was taken between Nos. 1 and 2, would say, yes. Wait a minute; No. 3 was taken nearer Romeo.

Q. No. 3 was taken nearer Romeo.

A. That is 2, is it not (indicating).

Q. Yes, that is No. 2.

A. That was taken nearer Romeo. That is about the last one I took as I went up toward Romeo.

5427 I cannot tell how far No. 3 was taken above No. 1. Harper Exhibit No. 3 is not taken from near the bank, it is taken in midstream. As to whether this bush (indicating) is on the bank, I would say that is not the bank there, the bank is further over. It is a bush in the middle of the stream or near the middle. As to whether the channel is here shown way over on the extreme left, I would say it is on the bend, I took that on a bend of the river channel. On the extreme left of the picture there appears water. There were pools of water there. This is a pool of water (indicating). This was looking to the south—no, let me see, that is looking to the north. I cannot say exactly how wide the river bed is at this point, I should judge about two hundred feet. I cannot tell exactly how far No. 3 was taken above No. 2. As to whether there were any particular land marks by which I could identify, I would say nothing in particular. This picture No. 2 is looking to the south. These pictures are far enough apart so that No. 2 and No. 3 do not coincide.

5428 They are far enough apart so that there is nothing in either picture that shows anything on the individual ones. No. 2 and No. 3 face towards each other. In No. 3 I am facing north and in No. 2 I am facing south. The river bed at this point is about the same in both pictures. This bush which appears on the left hand of the picture does not represent the river bank. There appears to be considerable water

lower down in this picture. Pools of water. There is no running water there. There appears to be a channel there. There appears to be a channel over on the left hand side but it isn't. I stood as near the center of the channel as I could figure. I know that the channel is not always in the center of the river. It may be nearer one bank or the other but I was speaking of the distance from the banks. When I speak of the center I mean the center of the river bed rather
5429 than of the channel. In this Exhibit No. 2 there appears a gentleman, who is Mr. C. A. Munroe. No other gentleman accompanied me on this trip. As to whether Mr. Munroe or myself selected the points at which I was to take these pictures, I would say Mr. Munroe did. He asked my suggestions as to the best points sometimes. My opinion was consulted in that respect as I remember it. I cannot give the conversation at this point where this picture was taken, as to why I took it at this particular point or why I stood at this particular position. We evidently had some conversation but I don't remember what it was. Mr. Munroe usually selected the points where I should place my camera in order to get the picture. I did take other pictures on this trip besides these three.

Q. Have you got any of those pictures here?

A. No, sir, I have not.

Mr. SCOTT. I have. Do you want them?

COUNSEL FOR GOVERNMENT. We do not care.

COUNSEL FOR DEFENDANT. You called for them, and I
5430 will give them to you now. Just note that I hand to counsel for the government two more pictures.

Q. Did you take any other pictures besides these additional two that have been handed me by counsel for the defendant?

A. No, sir.

COUNSEL FOR GOVERNMENT. Did I understand from counsel for the defendant that they are going to offer these in evidence?

COUNSEL FOR DEFENDANT. I offer them to counsel for the United States to do with them as he sees fit.

The WITNESS. My business is that if a professional photographer. I am located in Joliet, Illinois. I am in business for myself. As to whether I could go to the points at which these photographs were taken today and ascertain the same points, I would say I could with the help of the photographs, if I had the pictures with me, that is the only way I could do

it. I am not familiar with this territory where these pictures were taken. Not, at all.

As to whether I personally know as to whether or not this is the bed of the Desplaines river, I would say I know it is. I had not been there prior to the taking of these pictures.

5431 As to whether I was told by Mr. Munroe that this represented the bed of the Desplaines river, would say I knew it was the Desplaines river by being in that vicinity but I never went up the river on a trip fishing or anything of that kind, so that I could know any other way, aside from going with him. As to whether I made any examination of the surrounding country to see whether there was another bed of the river near there, would say I only made the examination that I could see as we walked along.

Re-direct Examination.

I live at Joliet on the Desplaines. We went on a street car to Lockport. Found the Desplaines up there. We went to the controlling works of the Sanitary District on foot. From there we went up the original stream, the same stream I live on at Joliet and found at Lockport. There was no continuous stream in the river at any point in the river I passed from Romeo on that day.

5432 Q. Referring to these pictures 1, 2 and 3, which has been offered in evidence, I would like to ask you what the condition of the river as you saw it that day at other points than represented by these pictures was so far as water was concerned?

Objection; incompetent, immaterial and irrelevant.

A. There was very little at any other point.

In my opinion those pictures were typical of the general condition of the stream between these points. The two photographs that were handed to counsel for United States are the two remaining photographs I referred to, taken at points between Lockport and Romeo on Desplaines, on the same day.

5433 (Which said additional photographs were offered in evidence and marked respectively "Harper Exhibit No. 4" and "Harper Exhibit No. 5." For copy of said exhibits see Appendix, pages .....)

Whereupon counsel for defendant called the attention of the witness to a map entitled "Map of the Illinois and Desplaines Rivers from Chicago, Illinois, to the mouth of the

Illinois River, in fourteen sheets, including an index map, sheet No. 12," and so forth, from House Document No. 263.

The WITNESS. I can point out on this map the river whose bed is shown in these pictures. There is the word "Romeo." The stream is over there. I am pointing to the stream west of the Chicago and Santa Fe Railroad track, and it was on that side of the stream that the river bed was found which I went up, and that which I have pointed out as the stream I went up is the stream marked Desplaines river on this map.

5434 *Re-cross Examination.*

Cannot indicate upon that map the point at which we took these photographs. About one-third of the way between the controlling works and Romeo, there are a number of islands shown as being in the river. Do not remember whether these photographs were taken among those islands. Could not tell whether they all were taken above or below these islands. I remember I saw some islands. Made no examination to see whether there was another stream bed further over to the east or west than one in which I took these photographs.

5435 Cannot tell the exact point where Exhibit 4 was taken, nor give any idea as to that. That is taken where the stream divides and passes each side of an island, two ways. It is looking down stream, down and across, not exactly directly across the stream, but diagonally. It shows quite a stretch of water about center of picture, extending all the way across the center. Those bushes are little islands. This is the bend of one bank—well, let's see: looking down stream, that would be the right bank; and this is one of the islands. The stream passes both ways there. When I say "this" in the first place, I am speaking of the right hand side of the picture, and when I say "this" in the second place

5436 I speak of the left hand side of the picture. This picture represents a branch of the Desplaines river. It is the same case here, there is an island and there are two streams. One passes on the other side. That is the embankment of the drainage canal (indicating), and there is a stream passes to the right side of these bushes. That is also another island (indicating). That is the left bank looking north. I am speaking now of the left hand side of the picture.

I made an examination of this other channel on the other side of the island. The condition over there was identical

with this shown in the picture. The channel on the other side is about the same in size. Do not recall making further examination to west to determine whether there was any channel further west. It was about 100 feet across
5437 there. The river or the channel or the bed of the river runs sort of zigzag through there. It has the appearance of being narrow there, while it is not.

Objection to Harper's Exhibits Nos. 4 and 5, incompetent, immaterial and irrelevant.

5438 J. W. WOERMANN, witness on behalf of defendant:

Cross-Examination (Continued).

The clearance at the McDonough street bridge is about 22 feet when the depth is 4 feet.

5439 The Adams or Malcolm dam is not there at the present time, but my authority for labeling it 1839 is testimony in state case. My authority for figures 1898 with reference to that dam is, I think, testimony in state case. I knew it was about that from personal knowledge. Dam was there in 1889 when I went down river. It was in 1867. It is shown on the 1867 Wilson profile which I introduced, my enlargement of it.

5440 My answer in the direct examination covers the point in regard to Adams dam, transcript 2504 (Abst., 1042) which says: "Q. Mr. Woermann, does the government profile of 1867, to which you have referred, show any obstructions in the Desplaines river? A. The profile shows it does. Q. What? A. It shows Adams' dam and Beard's dam, but does not show the Kankakee feeder aqueduct, and the Brandons road bridge, which I have added from the information on the Wilson map which accompanied this profile."

5441 Have not examined Wright's report of 1843. Do not know that General Wright states in that report that there are no obstructions in Desplaines below Dam No. 2. If that were a fact, then my date of 1898 would not be erroneous. I know that date is practically correct from personal knowledge. In 1889 we had to put our skiff into the river below the dam on account of its being there. I do not know that that dam was built between 1878 and 1880 instead of 1839. Was probably rebuilt at that time. Do not think the original dam was built then.

The Jefferson street bridge was there in 1889. Con-
5442 sists of one 78-foot and two 114-foot spans.

The C. R. I. & P. railroad bridge is the next bridge instead of the Jefferson bridge.

The clearance on the Jefferson street bridge is about 25 feet when the depth is four feet.

The C. R. I. & P. railroad bridge runs obliquely across the stream. The spans along the line of the railroad, are, one 153-foot; four 88-foot; one 65-foot. Distances between piers at right angles to the channel are much less. Have not those
distances. Should say the river is about 250 feet wide
5443 at that point. Clearance is about 18 feet when the depth is 4 feet. Should remark that these clearances I have given are all approximate. Have not the elevation of the bottom of the trusses; only of the floor, and have had to estimate in each case what the thickness of the bridge floor system was.

Passing the Jefferson street bridge, the next above is Dam No. 2, labeled 1841 to 1899 on the testimony in the state case. I know there was a dam there in 1880; that it was removed at the time the Sanitary District enlarged river at that point.

Q. Is Dam No. 2 owned and controlled by a private corporation?

Objection; incompetent, immaterial and irrelevant.

A. It was built in connection with the Illinois and Michigan canal, by the canal authorities.

5544 The next dam, which is labeled Cass Street dam, bears the date 1833 to 1841. My authority for those dates is the testimony in the state case, that is my only knowledge of the matter. I am not able immediately to refer to the particular testimony in the state case. Whereupon counsel for the government made the following request:

> I will ask you in all these cases where you have referred to the testimony of the state case to furnish me before the close of this cross-examination with the exact portion of the record in the state case which you referred to.

The WITNESS. I never saw this Cass Street dam. The next is the Cass Street bridge. I do not know when that was constructed, it was there in 1889, and is still there—a regularly traveled bridge. It consists of one 90 foot and one 214 foot span. The clearance is about 18 feet when the depth is four feet.

5445 The next obstruction is Dam No. 1, labeled 1846; constructed by the Illinois-Michigan canal authorities.

The next obstruction, however, was the Jackson street bridge, which was there in 1889. Is regularly traveled. Consists of two 62-foot, two 88-foot and one 89-foot span. Clearance about seventeen feet when depth is 4 feet. When I say depth is four feet I mean depth in the present channel as it has been deepened by the Sanitary District. There is a little more than four feet of water there in that channel now, through Joliet. The water in the channel through Joliet was about 5 feet in 1901, which is the flow line I platted
5446 on my profile that accompanied document No. 263, and represents the low water of 1901. Dam No. 1 is situated practically at the Jackson street bridge, only a few feet above the bridge. The map I have referred to is dated May, 1908. Sanitary District channel was opened in 1900; of course, not completed. Are still spending much money. Was completed in sense that water was turned in in 1900, and flowing through controlling works into Desplaines and Lockport. Have not shown Sanitary District channel on this map.

In 1908, there had been removed the Cass street dam, Dam No. 2, Adams' or Malcolm's dam, the railroad
5447 bridge which crossed Lake Joliet, Beard's dam, Treat's dam, and the aqueduct piers stood abandoned and alone with no connection between them. Prior to 1841 Dam No. 2 did not exist; after 1841 Cass street dam did not exist.

The map does not correctly depict the Desplaines and the obstructions in it from mouth to Lockport as it appeared at any one time in its history.

Q. This map was introduced at the request of defendant to show every obstructions that may have existed in Desplaines at various times and places, and does not truly portray conditions of Desplaines as it existed at any particular time in its history; that is correct, is it not?

Objection, map speaks for itself; shows on its face
5448 when obstructions were built and when removed, and therefore conditions at particular times.

A. Would say that it shows the principal obstructions; would not say that it shows every obstruction at all times.

I don't know what obstructions there ever were in the Desplaines not shown on the map. There are many boulders not shown.

I have before me Woermann's Exhibit No. 3, which
5449 was made under my direction by W. F. Millar. He was a draughtsman who was employed by me at that time. He was not in the service of the United States at that time. His business was that of draughtsman. As to whether he was in the employ of some one else or was in business for himself, I would say I have just stated that he was employed by me. He did not have any other employment except my employment. I do not know how old a man he was.

Q. How much experience did he have as draughtsman?

A. Sufficient to do the work that I had him do.

COUNSEL FOR GOVERNMENT. I submit, Mr. Woermann, that that is not a direct answer to my question. I move to stirke that out and I ask you if you can answer that a little more thoroughly. That is not an impertinent question.

A. I cannot tell you.

Q. Don't you know anything about his qualifications as a draughtsman?

A. I certainly did. I did not have to ask him his history, however, to find it out.

Whereupon counsel for the government moved to strike out the answer as not responsive to the question.

5450 Q. Tell us what you know as to his qualifications.

A. I know that he had been doing draughting before. I cannot recall the name of the firm he worked for. And I knew that he was able to do draughting of this kind, and I employed him to do certain work for me. Should say he was between 25 and 30 years old. Had not worked for me previous to this time. Know of his having been employed previously in draughting work. Checked over Millar's work very carefully; I scaled the critical depths. I mean the least depths on the Wilson profile, on the original tracing, and then scaled them as he had platted them. If there were any discrepancies I had them corrected. I perhaps scaled
5451 eight or ten and compared the rest of it by inspection. I made what a draughtsman would call a precise check from beginning to end. This map I introduced in evidence is by Paul Burgoldt; it is a tracing from Millar's profile, made by Paul Burgoldt, who was a draughtsman employed by the Mississippi River Commission. I did not assist any commission. The Mississippi River Commission was a United States commission. Burgoldt was not in the United States engineer's office except in a broad sense. The office of U. S.

engineer was in Federal building; that of commission in Liggett building, separate buildings.

5452 Potter is not a member of the Mississippi River Commission. Am uncertain whether the mouths of all the tributaries were shown on Millar's tracing or not. As I stated in the direct, these were not shown on the original Wilson profile, but were added by me for convenience in reference. Same is true of the Kankakee Feeder aqueduct. Do not remember as to whether these were all on the Millar profile.

The remark I just made should include Brandon Road Bridge. Those are all dotted to distinguish them from heavy line depicting the low water surface, and solid lines showing bottom of river. Beard's dam is drawn in solid because that is shown on the original Wilson profile. Same is true of Adams' Dam.

5453 Supplemental to my answer, would state, the mouths of these tributaries were shown on profile made by Mr. Millar, and I think only addition is Brandon Road Bridge, which is not shown on one made by Millar. The scale is different in this profile than in one of 1867. The tracing by Burgold is a copy of a map by the Board and on a different scale from the original, and having been carefully done, I see no reason why it should not have the same standing for accuracy among engineers that a copy would have made upon the same scale as original profile. I compared the critical depths with those I scaled from the original tracing. Recall no bench marks left by Wilson survey. Recall having seen no note books prepared in connection with it. Don't know whether Wilson profile of 1867 was ever officially published by United States. The United States is not in habit of publishing those profiles and maps any more than it did the maps and profiles I prepared in 1902 and 1905.

5454 In connection with House Document No. 263, the maps were photolithographed. The profiles were not photolithographed. United States not in habit of making photolithographs of important profiles and maps prepared in connection with various surveys. We have them on a small scale of the Marshall survey at Treat's island. I have

5455 no doubt that the profile of 1867 was filed in the engineer's office in Washington; would be incomplete report if not accompanied by profile. Never heard of that being done in 20 years' government service. Do not know whether it is there or whether it should be there. It is customary where engineers make official profiles of reports to send them

on to the chief of engineers. This profile was found in office of the United States Engineer, Chicago; was not an accidental discovery. Was indexed, and title speaks for itself.

5456 It is referred to in the government reports; the report of December 17, 1867. Profile in the U. S. Engineer's office at Chicago which I call Wilson profile, is a tracing. The original drawings from which these tracings are made are not in the United States Engineer's office at Chicago, to the best of my knowledge. With complainant's counsel, I searched for that profile in U. S. Engineer's office, Chicago. Did not

5457 expect to find it there; think original in Washington with report. At time survey was made engineer's office under which work was done was located at Davenport. In transferring records profile may have been lost.

5458 Fall at the mouth of Desplaines is about one foot in a thousand. Points on profile I take to get this declivity are about 2,000 feet apart. One at Beard's dam, other about 2,000 feet below; of a few hundred feet above the mouth. In 1867 river was about 180 feet wide at narrowest point. I state depth on that profile of river at mouth was .4 of a foot. I do not know what would be the average depth of the stream crosswise. As to whether it would be less than .4 of a foot, if that was the greatest depth, I would reply, yes. As to whether assuming that the depth was 2/3 of that amount, or 3/4, that would give you about .3 of a foot as the average depth, I would say it would. Taking the declivity as I have given it and the width as I have given it of 180 feet, and an average depth of .3 of a foot through the cross-section, as to what would be the mean velocity of a quantity of water

5459 flowing through there, such as Mr. Wilson describes; a thousand feet per minute, I would say the maximum velocity would be about .7 of a foot per second, and the average velocity about .4 of a foot per second. Whereupon the following stipulation was made between the respective counsel:

(It being desired to supplement or enlarge stipulation heretofore made in reference to the testimony introduced on the state case, it is agreed that counsel for either party may introduce in evidence any statute or other published documents, by giving notice not later than September 15, 1911, of intention so to do, with reference to such statutes or other public documents intended to be used; subject to any objection as to the competency, materiality or relevancy of such statutes or public documents.)

As to what would be the velocity assuming a flow of a thousand feet, would say I did not use that figure of a thousand feet in my assumption.

5460 The discharge given those figures with a mean velocity of .4 of a foot, would be about 21 feet per second, taking the assumption that the average depth is .3 of a foot and the width 180 feet. I took the declivity at 5 feet per mile, which is about one foot in a thousand.

The measurement of depth at Treat's island is .8 of a foot in the left hand channel. Left hand channel going down is the right hand channel. Left hand channel is deeper. The Wilson profile of 1867 using the right hand channel does not represent line of deepest water. Do not know the depth in the left hand channel in 1867.

5461 In the rapids below Joliet the shallowest points were .5 and .6 of a foot; the declivity at that point being about 4-1/2 feet per mile according to Wilson profile.

To determine declivity I take in two points on those rapids. Wilson profile has drawn it as a straight line, from Adams' dam to head of Lake Joliet; very nearly three miles. Two miles and three-quarters, perhaps, would be more accurate. The width through there at those shallow points is quite variable. As to what is the width at the shallow points, which I have given as .5 and .6 of a foot, would say that in each case where you say "is" do you mean "was," so far as it was at the time shown by Wilson?

5462 COUNSEL FOR GOVERNMENT. I mean in 1867, yes, sir. The river is very much broken up by islands at those places, but the combined widths, that is adding together the widths on each side of any island, only runs from 350 to 400 feet. The average velocity is about .5 of a foot per second. I would be unable to say what the discharge would be. As to whether I can calculate it, given the velocity, the width and depth and the slope, I would say I have not got the depth. As to whether I did not give that as .5 and .6 of a foot, would say I did at that one point depicted by the profile.

Q. Take it at that point.

A. As I stated a few moments ago the river is very much broken up by islands and I do not know what the average depths for the total cross-section would be. The way I would compute it would be to assume the discharge was the same as it was at the mouth, and work backwards.

5463 Where the river was spread out over such a wide area as it was there, the water running between boulders and

all broken up, a poor guess at the average depth would be probably less than half the depth of .5 or .6. On the assumption that the width is 350 feet and the average depth .25 of a foot, the discharge would amount to 44-1/2 cubic feet per second, which is evidently an error, so that the assumptions are evidently in error. It is about double the amount I figure at the mouth. The assumption is evidently in error, according to statement of Wilson's report, which states discharge to be 1,000 cubic feet per minute, or 16-2/3 feet per second.

5464 Regard calculations I made at mouth of river more reliable than those just made as to rapids below Joliet. Wilson's map or profile both show Beard's dam, so was probably in existence in 1867.

Referring to stretch through rapids below Joliet, from dam No. 2 down to Lake Joliet, the Wilson profile shows a uniform declivity for entire distance. I am familiar with the slopes and rapids below Lake Joliet. Where a slope as represented in the profile does not vary for nearly three miles, would say it was not accurate to as great a degree as one in which the elevation of water surface had been determined at more frequent intervals.

5465 This profile shows on the Desplaines river between Adam's dam and the mouth of the river, nine intervals, counting one below mouth of Kankakee. Am speaking of my copy of Wilson profile, the low water line of which is an exact copy of the one on Wilson profile. Wilson profile shows uniform slope from head to foot of Treat's Island.

The next level across pool at foot of Treat's Island. Next slope at mouth of Du Page river. The next level lake DuPage; the declivity through Lake DuPage being shown as about two feet. There is no such declivity shown on any

5466 later profiles of Lake DuPage.

Referring to my testimony at transcript 2526 (Abst., 1048), which reads (reading): "Q. How much?" "A. 13,000 cubic feet per minute." "Q. Yes." "A. Deducting from that the 2,800 feet per minute which according to the evidence in the Druley case was required for navigation below Dam No. 2, leaving 10,200 cubic feet in the river below Dam No. 2, or 170 cubic feet per second. Then by proportion, taking the area of the watershed above Riverside as 633 square miles," and so forth.

One hundred and seventy cubic feet per second represents the amount that would flow down the Desplaines from Dam No. 2 to its mouth, according to that computation. No other

canals lead from Desplaines river which would take water out of Desplaines river below Dam No. 2. 170 cubic feet per second flowed down river to its mouth. This 13,000 cubic feet per minute was the amount pumped into the Illinois Michigan Canal. The water flowing in the river would probably be very little more than the water coming from the Illinois and Michigan Canal. As to whether there was any additional water, or in other words as to whether the water flowing in the river would be greater than the water coming from the Illinois and Michigan Canal, will say probably very little if any at that time. As to what became of the water in the Desplaines river itself, would say there probably was not enough to speak
5467 of at that time. Hickory creek contributed very little if any additional water above this 170 cubic feet per second. Rock Run would not contribute enough to measure, I should say. The DuPage certainly did not; they kept the water in the DuPage up in the canal; I imagine the cows drank every bit that came down Jackson Creek in 1867 and all those other creeks.

5468 The Kankakee cut-off does not contribute water to the Desplaines except when Kankakee is high and Desplaines low.

Ordinarily it is flat, dead water. It is not always higher at the Kankakee end of the Kankakee cut-off than at the Desplaines end. Testimony of people who lived in that vicinity, is that water runs sometimes in one direction and sometimes the other, depending on height of rivers. I presume it is only in time of flood that the water of the Desplaines river flows into the Kankakee through the cut-off. Basis
5469 of my computation of 13,000 cubic feet per minute, is the amount alleged to have been pumped into canal by table of Ossian Guthrie which I refer to; so that in computing the actual water in Desplaines below Dam No. 2, I have to add whatever natural water if any that flowed into Desplaines in order to make an accurate computation. If there was, there would be more than 10,200 cubic feet flowing in river below Dam No. 2.

Q. How do you reconcile this statement of Wilson's, that there was a thousand cubic feet per minute discharged in the Desplaines; and your own computation which showed 10,200 cubic feet per minute, without taking into account the amount of water poured into the Desplaines river below Dam No. 2 by these various other streams?

A. Wilson profile shows surface of water at time his sur-

vey parties determined water surfaces; which had nothing whatever to do with lowest discharged measurements he
5470 secured. His profile does not fix that low water discharge at 1,000 cubic feet per minute, nor does he anywhere say so. His statement that the discharge of the Desplaines was 1,000 cubic feet per minute would not be error. The profile, on assumptions which may or may not be true, by my calculation shows 1,200 cubic feet at the mouth of the river and about 2,500 cubic feet at Joliet. I am unable to say the liability to error to extreme variations from those assumptions. Do not know whether it would vary 1,000 feet or 10,000.

5471 (It is agreed between counsel that testimony of Daniel W. Mead as given on pages 3797 to 3808 in the record of the case of The People *ex rel.* v. The Economy Light & Power Company, in the Supreme Court of Illinois, No. 6242, shall be inserted here as though given upon this hearing, the matter referred to relating to the qualifications of the witness.)

DANIEL W. MEAD, witness on behalf of the defendant.

Direct Examination.

Am 46 years old; occupation civil engineer; at present residing in Madison, Wisconsin. Have an office in First National Bank Building, Chicago. Graduated from department
5472 civil engineering at Cornell University June, 1884. 1884 and 1885 was topographer in United States Geographical Survey, working in the Chippewa Valley, Wisconsin; went there after flood in 1884, to study conditions along river, make maps and reconnoisance survey of river, flood
5473 planes and the glacial terraces. Succeeding winter and spring of 1885, until middle of year, engaged in making maps and report to Professor T. C. Chamberlain, in charge of glacial division of U. S. geological survey. Late in 1885 appointed city engineer, Rockford, Illinois, then my home, and remained there two years. Designed sewerage system for city. 1887 one of organizers of Rockford Construction Company, that made a specialty of building municipal public works. Was engineer and manager of company until 1896. Previous to that had done some work in general practice of civil engineer. From 1896 to present time have been in practice in general lines of engineering, principally on hydraulic

work. First experience on water power work in 1886;
5474 retained by Rockford Water Power Company to study question of flowage above their dam. Designed a new dam and constructed a portion of it across Rock river for members of that company. Constructed hydraulic power plant for Rockford Edison Company, of 1,500 horse power; plant has not been constructed up to date. Acted as engineer at Sterling for Sterling Hydraulic Company in study of probable effect of Hennepin canal feeder on water power at that place, report of which I published some years ago. Designed and built plant of Sterling Hydraulic Company. Made study of probable back water flowage from government dam, done at request of Captain Riche, of U. S. engineers, being a question of compensation for effects of Hennepin Canal. Designed and built various dams, among them dam at Batavia, on Fox river, a concrete dam at Danville on Vermillion river; small dam at Muscoda; wooden timber dam at New Albany, Indiana,
5475 and am now building at Kilbourne, Wisconsin, being engineer for Southern Wisconsin Power Company; constructing power plant costing million and a quarter to develop, and at present 12,500 horse power, with future extention to about 18,000. Have made reports on good many plants, water power plants.

Am now designing plant for Northern Hydro-Electric Company at Green Bay, to be built on Peshtigo river in northeastern Wisconsin. Spending nearly a million dollars there, to take up power to Green Bay from Fox up as far as Neenah and Menasha. Made report on water power project in Little Wolf River, Wisconsin; expect to construct this season, building two water power plants developing 5,000 horse power to be transmitted to Oshkosh. Have reported on water power at Constantine, Three Rivers, Lansing, White River,
Michigan, power at Fremont, Ohio, and others I do not
5476 recall. Make reports on hydraulic matters for bond dealers in Chicago, among them N. W. Harris & Company, Royal Trust Company, Devitt, Tremble & Company, Trowbridge & Niver Company, John Ruvine & Company, and am engaged by Pittsburg Trust Company, of Pittsburgh, Pensylvania, to report on water power at Atlanta, Georgia, near Lincoln. I built water supply systems at Rockford and Fort Worth, Texas. Have been connected with good many cities of the states in water supply, among them Joliet, LaSalle, Rock Island, Moline, Springfield, Decatur, Danville, Lawrenceville, and a dozen or so others, among them Ft. Wayne, Terre

Haute, Winchester, Ligonier, Indiana, Waterloo and Fort Dodge, Richland Center and Green Bay, and a number of water supplies for private individuals of some magnitude.

5477 Built two plants for water supplies for Schlitz Brewing Company. Just installed two six million gallon pumping engines to pump water for condensing purposes. For Pabst Brewing Company, installed number of deep wells and centrifugal pumps to raise water, capacity of three million and a half a day for washing purposes.

Incidental to bond work have done some levee work. Designed and built levees of the Meredosia drainage district below Albany, Illinois, on Mississippi river. Examined a number of drainage districts for bond dealers. Two years ago prepared plans for Sumas Development Company

5478 in British Columbia, along Fraser river. Expect to spend about three-quarters of a million there; am consulting engineer. In that development we expect to change the course of the Chilliwack river, which flows at present through the district of Lake Sumas, for about four miles. The river is of considerable size; has a flow of about a thousand second feet, and a high water flow of about sixty thousand second feet. The drainage is not very different from the Desplaines, except that the Chilliwack comes from the mountains and is fed by glaciers in the snow fields, and has very high floods and continuous flow. Its storm floods would be three or four times that of Desplaines; its low water is a thousand second feet.

5479 The Fraser river is a very large river, much like the Mississippi. It flows over a territory of 35,000 acres that we expect to reclaim. The Chilliwack flows into Lake Sumas, a lake of about 12,000 acres, that we expect to drain. To do this we are obliged to divert the Chilliwack directly into the Fraser, and we carry it across from its present bed across the district between levees, earth levees. We have a bank, a new bed there that will be about four miles in length; we are constructing a channel that will carry the low water flow across the district. The high water flow calls for two earth embankments about 700 feet across and 18 feet in height. The fall is considerable, and to eliminate high

5480 velocities are putting three dams across the river. We will carry a velocity of about three feet per second, controlled by taking the fall out by dams. We have dikes

along Fraser river, and large pumps to handle another branch of Sumas creek.

Am chief engineer of the Economy Light & Power Company, have designed the works that are or were under course of construction near Dresden Heights. Made the report for the people who bought the bonds, and at their request was appointed chief engineer by the company. Have acted as appraiser in a good many waterworks cases, among them the Omaha Water Works, the appraisal involving over six million dollars. At that time we had to examine over a million dollars worth of improvements to shore protection along
5481 Missouri river at Florence. Have been chairman of the Board of Appraisal at Appleton, Wisconsin, and Baraboo, Wisconsin; Traverse City, Michigan; Forest, Illinois, and Pittsburg, Kansas; appraisals having taken over water works by municipality. At present am representing a half dozen water companies for Wisconsin Railroad Commission, who are making appraisals for purchasing plants by the cities, and other cases establishing rates.

Have been professor of hydraulic and sanitary engineering at University of Wisconsin since 1904; just completing fourth year. Never taught before went there. Went there for opportunities offered to continue outside practice, and do research work.

Q. What was the attraction as to research work at the Wisconsin University?

5482 A. Great many formulaes hydraulic engineers are obliged to use are more or less approximate. To determine actual value of constants and actual turth of formula, very large amount of work is necessary, based on actual determination or experiments. Have designed and built laboratory for University since then; have number men engaged under my direction in studies of that character. Laboratory is considerably larger than most other equipment of universities in country in operation. Opportunities for work of considerable size better. Ordinary laboratory has been on rather small scale. Determinations made were little uncertain, account small apparatus. We built laboratory large enough to experiment on work of considerable size. Recently
5483 published bulletin on flow through four-foot orifice. Up to present time no information available on flow through such large aperture. Are carrying on various experiments with turbines, centrifugal pumps, water hammers, flow of

weirs, flow through pipes, matters of that sort, to which the attention laboratory engineers has been attracted, for which sufficiently exact data has not been available. Have published three bulletins; large number more in preparation. Have written number of papers on hydraulic subjects; some fifteen years ago, number on hydro-geology, one on water supply and power, or water supplies and resources of Illinois; one on hydro-geology of upper Mississippi valley. Have published small book on hydrology, covering fundamental principles of hydraulic engineering that is used as text book at University of Wisconsin. Have published early part, about third, of book on water power engineering; which will appear in its
5484 entirety in July. Am same Mead who testified in case of *The People ex rel.* v. *The Economy Light & Power Company* in Circuit Court, Cook County, in 1908. Since then have been engaged in lecturing at University Wisconsin; practicing my profession as consulting engineer, entirely on hydraulic work. At that particular time had just begun construction of hydro-electric plant at Kilbourne, on Wisconsin river. Has since been completed; is in operation. Is plant for generation of electrical power by hydraulic means at Kilbourne, transmits power to Milwaukee, gives capacity of 10,000 horse power under head of from 17 to 20 feet. Designed that work. Superintended construction. Built some of it by day labor of which had personal charge. Also com-
5485 pleted plant on Peshtigo river with capacity of five 1,000 kilowatt units under head of 75 to 85 feet, transmitting power 65 miles to Green Bay. Have made numerous reports on hydraulic projects. Since that time have designed and am just beginning construction of 16,000 kilowatt plant on Wisconsin river at Prairie du Sac. Power will be transmitted to Milwaukee and Madison and surrounding country. Engaged at present in constructing plant at Twin Falls on Menominee river near Iron Mountain; will have capacity of five 1,000 kilowatt units. Since that time have rebuilt waterworks at Decatur and am now engaged in reconstruction of waterworks at Quincy. Both cases are city supply. One in hands of private company. Decatur plant owned by city. Also redesigned and built new electric light plant for Decatur. Have done a very large amount of other minor works. Those are the principal ones. Made various surveys and reports I mention Flambeau River, Chippewa River and Little Wolf. At present making surveys for power on Wolf River.

All those surveys made with view to power. Am en-
5486 gaged at present in investigation of large water power partially in Pennsylvania and partly in West Virginia; power in ultimate development probably will exceed 100,000 horse power. Investigated and made preliminary plans since for 50,000 horse power plant on Columbia river at Priest Rapids in Central Washington. Also investigated several powers in neighborhood of Boise, Idaho; one on Snake river, between Oregon and Idaho. Also investigated number of irrigation projects since, some in Washington; one in Utah. Recently reported on water proposition on Spokane river about nine miles east of Spokane. Think have been in British Columbia since then; investigated several water powers in Washington; one north of Seattle. When I say investigation, it usually includes both field investigation and investigation of hydraulic resources by examination of records; of plans where have been made; if not, preparation preliminary plans to learn physical and financial feas-
ibility of project, usually in relation to practical de-
5487 velopment; whether it will pay to develop. Most investigations made for financial interests. Have had occasion to consider effect of deforestation upon flow of streams. Regimen of stream is important factor in power projects that I have investigated or constructed; is one of vital features of proposition. Examined effect of deforestation upon streams for two reasons; one is bearing of water supply upon power. Other is question raised by various financial interests whether could expect their investments to be permanent; whether deforestation or other changes, drainage of swamps, etc., would or not have serious effect on regularity and quantity of flow, so to determine whether investments might be considered permanent or if would be seriously influenced by change in regimen brought on by changes on water shed.

Desirability of reforestation has been considered by me
5488 in that connection; is question that has been raised particularly in Wisconsin regarding reforestation of head waters. Tax has been proposed for reforestation on grounds flow of streams would be very greatly benefited and water power owners would be directly benefited and could be taxed for purpose reforestation. Have written upon subject of deforestation upon stream flow; and on other subjects connected with stream flow; as early as 1892 or 1893 to date; sev-

eral pamphlets and reports. Have produced recent work
5489 on subject. Recently published bulletin of University Wisconsin, on flow of streams and factors modifying it with special reference to Wisconsin conditions. Have volume in hand in which it appears. Publication is Bulletin 425, University of Wisconsin, Engineering Series, Volume 6, No. 5. In specific cases have arrived at conclusions as to effect of deforestation on stream flow; perhaps not as general proposition, which is very broad question. Have arrived at conclusions as to such effect in streams similar to Desplaines river in general way.

Objection as to it pertaining to anything but Desplaines river.

5490 In general way am familiar with physical characteristics of Desplaines river. Have known it great many years.

Have opinion as to effect of deforestation upon streams of that character.

Same objection, on ground no proper foundation been laid for question and not sufficient evidence as to similarity of conditions.

The WITNESS (continuing): Think deforestation of Desplaines river, if such deforestation is large factor, would tend to increase run-off slightly and to slight extent decrease its regularity. As to how the regimen of low water stage would be affected, would say I believe flow would be maintained for a little longer period if a stream was well forested than if it was totally deforested. Do not think extremes of either low or high water would be materially modified. Do not believe would be very material modification between total forestation and total deforestation
5491 on Desplaines river, assuming it was in one case entirely covered with forests and in other case was practically defortested; as it is, occupied by farms and homes and habitable as we find it now. Think under those conditions difference would not be very material. Think would get little more water with deforestation; little greater regularity with forestation.

Objection extends to all this testimony on ground no foundation is shown and no qualifications.

The WITNESS (continuing): Will explain use of country by farms and dwellings as to effect. The cutting off of forests

in this part of country been usually followed by use of
5492 the lands for farming purposes. In forested condition
proportion of rainfall actually reaching ground is considerably reduced. French experiments show average of about 25 per cent. less rainfall under a forest than in the open fields; that is, about 25 per cent. is received on leaves of trees and evaporated without reaching the ground, thus reducing quantity of rain that would reach ground and that could afford a source of run-off. On other hand, evaporation under the trees is reduced; that is water in soil or water on surface of soil and in ponds surrounded by forests is less of it lost by evaporation on account of trees, and prevention of circulation of air. Trees as rule use less water for actual consumption from their roots than various farm products; less than grass lands and grain. Taking into account amount evaporated from leaves and quantity consumed by the trees for maintenance there is, as a rule, a larger proportion of rain
water, I believe, consumed in the forest than in open.
5493 That is the reason I say think as general rule cutting
off of forests will increase total annual amount of flow of the stream. Other conditions following deforestation and settlement are draining of lands and cultivation of lands. Draining of lands affects various river systems in various ways. Great many of the inter-morainic depressions—I mean country inside terminal moraine have sink holes caused by presence of ice, affording effective drainage. They are places with no outlet until water has risen considerable distance, and drainage system of all this inter-morainic country is not developed. Geologically speaking, has only been short time since glacial period; and we find many of these sink holes and pot holes in Desplaines valley; refer to larger bowl shaped areas of slight depression that in great extent will make swamps,—as general proposition they retain certain amount of water that gets out very slowly, most of it evaporating, and their presence on a drainage area means large loss by evaporation. As drained out they tend to increase discharge of
stream and cultivation going along with them, and under
5494 drainage opening ground to entrance of moisture, makes
ground water more acsessible to rainfall; tendency of both those conditions, drainage and cultivation, is to reduce evaporation somewhat and to steady the stream. In number of cases it has been observed that extensive cultivation has apparently increased low water conditions of stream. Think

I have in general way answered question. Questions of water supply and other matters that sort have been introduced but would have slight effect. Doubt if additional waters secured from artesian wells and find their way ultimately into streams would have any more effect than forests. Have no familiarity with conditions existing in state of nature between south branch of Chicago river and Desplaines as to swamp sometimes called Mud Lake or Portage Lake existing there.

Q. Assume that there did exist a swamp of considerable extent between Desplaines river and south branch of Chi-
5495 cago river that had disappeared through inhabitation, drainage and cultivation. Have you an opinion whether or not doing away with that swamp by means indicated would in any way affect low water conditions of Desplaines river?

Objection on ground hypothesis not sufficiently definite as to extent of swamps and other details, to be of value in case.

A. That would depend somewhat upon nature and extent of swamp. I judge that the question gives certain information that swamp was readily drained and therefore not very deep, or had no very great depth, therefore no great retaining capacity. Swamp of that general nature that can be readily drained and cultivated is apt to be source considerable loss to flow of stream, furnishing large evaporating area; and while swamp of that kind would be apt to reduce flood flow slightly, doubt if it would add to low water flow of the stream. Drainage and cultivation ground where swamp was, in my judgment, would afford better means of regulation of low water condition than swamp itself.

5496 Have read part of Professor Cooley's testimony on subject we are now considering. Think have no comments to make upon it. Cannot agree with his conclusions. Do not think possible from any information which I am acquainted with, and I have examined literature on subject at considerable length,—that it would be possible on any drainage area to make calculation showing quantity, even approximately, that would be added to or taken from stream by either reforestation or deforestation. Believe only way that could be exactly determined would be by long term of records. There are a number of points I might mention where Mr. Cooley and I do not agree. I cannot agree that it was the general opinion of engineers that deforestation affects stream flows to any large measure. There is a popular super-

stitution that is exceedingly common to that effect but it is not based upon a careful examination of the question.

As far as I know the earliest opinion that I saw ex-
5497 pressed was the paper by Wex on the Danube, published a good many years ago, and translated by one of the members of the United States Engineers Corps. Wex discussed the flow of the Danube in regard to the gauge heights, and as I recall it at this time—it is some time since I read it—but, as I recall it at this time his discussion is entirely without a parallel discussion of variations in rainfall that always occur, to which changes in gauge heights can always be directly attributed. Since then there have been various articles that have appeared on both sides of question. Usually have been based upon opinion and superficial observation rather than on exact data. Usually been written with view of defending and maintaining preconceived notion rather than to determine truth of the matter. Think in number of cases Mr. Cooley and I agree that forests have a certain modifying effect upon the flow of water across land; they hold back minor flows; water will not reach river as rapidly with a forest as without if flow is comparatively small in quantity. When flow increases I doubt if forests have any material effect, that is, in excessive heavy rain storms after smaller rains are over, heavier rains pass through to the ground,
5498 the forest bed is saturated and it is usually a comparatively thin bed and water runs away practically as freely with as without bed. One of the main features is fact that when you take storage on a watershed, you see water there, you know its source, how it is retained, you see the lake filling and the water flowing from it in less volume because of less height due to spreading out of lake. Take ground waters in sands and gravels on many of our streams; which is not a theoretical source of supply, because many municipalities are taking water supply from lakes and pumping their supply from ground storage; but I never had occasion and know of no engineer who ever had occasion to go to a forest bed to find water. You can find water after rain in forest bed, but it is small in quantity and comparatively soon disappears, held back somewhat by lack of evaporation. Surface supplies outside of forests evaporate earlier because of increase in evaporation outside, but when you look for this store-
5499 house of water that is said to exist in forest bed, I have never been able to find it. Never have seen it; have

looked over great many watersheds and into that proposition. Modifying effect of forest is there, but is one of minor influence; doubt if would be very material on any watershed. On some am satisfied has no influence whatever. Were many matters covered by Mr. Cooley; took no note particularly of them; do not know as could discuss them without taking a note of them. Read his testimony for the first time since came to-day; glanced through it hastily. Have and have not had occasion to make observations on streams before and after deforestation. Never made personal observations on a stream before and after, but had occasion to investigate observations made for long term years during which deforestation took place, and to study and try to determine what effect resulted from deforestation and other changes on the water shed. Results of those studies enter into conclusions
5500 I have given here. Have studied upper Mississippi above Hastings for 37 years, about; about 35. The Wisconsin above Portage for about 37 years; Wolf River above New London about 27 or 28 years, during which deforestation took place on drainage areas of those streams; but was unable to discover that deforestation, amounting to in some cases about 33⅓ per cent., had influence to increase or decrease high water or low water, or the mean condition of flow. Observations made on those rivers are applicable to Desplaines only in a general way. They necessarily bring with them a basis of comparison for streams more or less similar, the condition of streams locate under similar conditions of temperature, rainfall and geological conditions. No two streams are exactly alike; hence cannot carry comparisons out to ultimate limit, but they afford basis of judgment; which I have endeavored to and did apply to Desplaines river.

5501 Q. Can state whether precipitation has decreased or increased materially throughout this general locality during the period of which we have records?

Objection; records are best evidence.

A. I have made careful study of that subject within last year, not only of upper and central Mississippi Valley, Ohio Valley, New England, Southeast and extreme West, and while finding very great variations occurring more or less in irregular cycles I have found no evidence of any increase or decrease in general average of precipitation at any of these points. They increase for a considerable period and decrease

for a considerable period, but do not recall one instance where condition of rainfall at present is any less or greater than at periods in past; or anything to lead me to think that there is any material change in the rainfall.

Cross-Examination by Mr. Cressy.

5502 As to what investigations I have made in reference to the conditions of forestation on the Desplaines river, will say I have made no investigations in regard to that. My only knowledge as to that is from the evidence that has been given here. My principal knowledge of the Desplaines, with which I have been familiar for a good while, has been taken from one of Cooley's Reports which was published sometime in the eighties. I have a copy of it and read it a number of times some years ago. Not lately. Have, of course, been familiar with the Desplaines at various points, but have never been over it in detail. I know its general conditions as I know those of many other streams. Do not know that I could name any particular points at which I am familiar with the general conditions of the Desplaines river. I have passed over the Desplaines; lived out here at Austin and have been out on the Desplaines which is west of there, and of
5503 course passed over it on the railroad. As to whether I take into consideration the condition of the subsoil of the river bed in considering the effect of the forestation or deforestation, would say I think it would have its bearing. As to whether it would make a difference whether it was a permeable subsoil or an impermeable subsoil, as to the effect of deforestation, would say that it would undoubtedly have a larger relative effect upon a stream with an impermeable subsoil, such as the Desplaines river, than it would on a stream that had a very permeable subsoil. I think perhaps I would have to modify that to this extent, that the conditions in regard to those soils would have to be taken into consideration, as to whether even though permeable, they could give back the water to the stream itself, or not, but under similar conditions I think that it would have a little larger relative effect in regulating the stream where the subsoil was impermeable than it would with a permeable subsoil. As to whether in the hypothetical question put to me about the drainage of this swamp area, it would make any difference as to whether that swamp area was drained into the Desplaines

river or whether it was drained into some other water system, would say if it was drained into some other water system, of course, it would be gone, whatever drainage there was there would be gone from the water of the Desplaines.

5504 It would make a difference to that extent, and the effect of that swamp area in a state of nature would depend on whether it drained into the Desplaines system or into another system. Being asked to suppose it to have drained into the Desplaines, and that the Desplaines river basin had been deforested, and being asked if I would say that those two elements would have any effect upon the run off of the stream and the maintenance of the mean, or low water volume, would say those two points would be entirely separate, I should judge. Of course, the withdrawal of a portion of the area would withdraw the waters that would naturally flow from it, and would have an effect to that extent. I am not familiar enough with the swamp condition to be able to know whether it would materialy modify the low water flow, or not. What its geological condition was, or what its nature was, whether it was impervious or whether its drainage might develop sand and other materials of that sort. I know that the Desplaines river basin is essentially or very largely an

5505 impervious subsoil. Of course, in that particular case, the removal of a certain portion of the area would affect the mean water to some extent. But, I do not see with its impervious nature, how it would affect the low water flow, because I know from the gaugings which have been made there for a great many years, that it is little or nothing. As to the deforestation part of the question, in answering I can simply repeat what I have said in regard to that, that I think the effect of the deforestation would be to cause the low water conditions to appear slightly earlier than it would if the land were forested, but I do not think that it would make any material difference as to the extreme of low water or the extreme of high water. It might, in other words, modify the regimen of the river slightly. The extent and character

5506 of the swamp would modify the regimen of the streams according to their physical conditions. As to whether in order to properly state what would be the effect of deforestation, it would be necessary in each particular case to investigate what was the extent of the swamp area, would say, if that was a very large item, I should think so, but not the minor conditions that, as I understand them, occur on the

Desplaines. I do not understand that there has ever been any very extensive swamp areas on the Desplaines river, at least, I am not familiar with any location where they have been extensive. As to whether if it was a fact that I was in error in that assumption, and that there was a considerable swamp control, that part of the swamp control had been drained into the Chicago river and part of that swamp control had been devastated by means of a canal being cut through a section of the country where the swamp con-
5507 trol formerly existed, my opinion would be modified as to the effect of deforestation upon a watershed like the Desplaines, will say I do not see any reason for modification. Of course the extensive swamp systems, such as we have in many places in Wisconsin, are not forested, most of them. Of course we have our tamarack swamps that are forested. For instance, such as those on the Upper Rock River. Some of those swamp areas are without trees so that those areas when they are drained may or may not have an effect, according to the conditions under which they existed and the new conditions brought forth by the drainage; but as a general proposition they are entirely distinct from the forest effects, which are in another portion of the drainage area. So, I do not quite catch the relation that should be modified on account of the presence of the swamp, and that is my modification in the forest conditions. As to whether a swamp has the general effect like a pond or lake, to retard the flow of water, will say to maintain the regimen of the stream to an extent, yes, depending somewhat on the character of the swamp. Of course the whole tendency of a swamp or low place, a lake or any other condition of that sort, is to catch the rainfall and to store it, and on account of the fact that the rise is not very great the run off from the swamp area is comparatively slow and the result is a decrease in the flood heights, if you had a swamp area as a general proposi-
5508 tion, a prolongation to the flow of the stream, to an extent. There is this point that has to be considered in addition, that the swamps are usually full of rushes and grass and matters of that sort, that the evaporation is exceedingly heavy, heavier from a swamp area as a general rule, I believe, than from the area of a pure surface of water. That is to say, that there is a greater exposure due to vegetation and due also to the shallow depths of the swamp. The result is when the swamp is drained out, that if it is simply a ques-

tion of drainage and there is no cultivation, I think you would be apt to get a more immediate discharge of water. When cultivation begins, I think that you are then restoring in a better way the storage capacity, perhaps not to the same extent, but to an extent that will certainly affect the low water advantageously; that is to say, a ground storage is the best possible means of increasing the low water flow; that is, on the average it is not affected, because it gets into the ground and it flows slowly to the stream, supplies water to the stream,

and therefore maintains the low water better, because it
5509 cannot be lost, as the water from the swamp is lost by
evaporation. As to whether my answer would be the same with reference to the ordinary flow of the stream as distinguished from the low water flow, I do not know but what I would ask to have my answer read over again to see whether it would apply. It was applying my answer partially to the low water. I think I have rather dragged that answer into several conditions of water. Of course, the ordinary flow after a rainfall would be held back by a swamp and delivered a little more slowly than it would for instance, from a tributary, perhaps. As to whether after a flood or high water, the volume of the water would be continued longer at given stages with the water shed where there was swamp control, than where there was no swamp control, let me see if this will not answer the question; that any surface control, such as a lake or a swamp or a forest, taking the limited extent of the control of forests into account, the result of any of those surface controls is to regulate the stream,

but to decrease the total amount of water that reaches
5510 the stream; in other words when you store water on
the surface, be it in a lake or in a swamp, the evaporation is heavy and the total quantity of flow water is less and the regularity of the stream is increased. That, I think, is quite apparent if you take the flow, for instance, of the Great Lakes, into account. You get a flow of about 36 per cent. of the rainfall, as I recall it, whereas in some of our Wisconsin streams we get as high as 65 per cent. of the rainfall flowing away in the streams. The forests have a slight regulating effect upon the run off, the swamps have a much larger regulating effect, and lakes a still larger effect as a general rule. Of course conditions may vary so that statement might not strictly apply, but that is the general condition of controls of that sort. As to whether I assume as a

fact the truthfulness of the French experiment which assumes that only 75 per cent. of the total rainfall reaches the ground in forested regions, will say I know it is true, but I do not know its extent from any personal experience. I have stood many days during a rainfall under a tree and known that none of the rain came through, and that is a
5511 common experience that you can vouch for as readily as I can, and I know that that went up in evaporation. Now, I never measured it, but the French experimenters did, and those experiments were considered so reliable that they were given in Bulletin No. 7 of the Forestry Reports, and I assume that they are, therefore, accurate. As to whether in making these answers to various questions put to me on direct and cross, I have assumed that only 75 per cent. of the rainfall reaches the ground in the forested regions, would say, no, I would not make that assumption. I assume that there is a considerable loss, I know in some instances it is much smaller than that, and in other instances it is probably larger, for the French experiments were in some particular cases as low as 10 per cent. loss, while in others they were as high as 40 per cent.; it would depend somewhat on the kind of trees. As to whether it would depend somewhat as to the season of the year also, of course those were experiments that lasted during a considerable period, I understand. What
5512 per cent. of the rainfall would be retained by trees and evaporated by them before it reaches the ground, would depend very much upon the season of the year. As to whether it would be fair to say that the general effect of deforestation is to shorten the period of high water and lengthen the period of low water the extent to which the high water is shortened or the low water lengthened, being dependent upon the conditions of the particular water shed, would say, yes, with the understanding that in any event the change was very slight. I do not think it would ever have a very great effect. As to just what effect it has, which is in some dispute among engineers, is very largely a question of degree. As to whether counsel understood me correctly in understanding that I said that I agreed with Mr. Cooley in the assumption that the forest consumed less water than the open country, would say yes, if you confined consumption entirely to the amount that is taken up by the root; if you take into account the amount that is lost in evaporation from the leaves as well, I think it

is greater than even the grass lands or grain. I think
5513 it is essentially correct that the amount that goes into plant life in the forests is less than the amount that goes into growing grain or grass.

Re-direct Examination by Mr. Scott.

Austin is in the Thirty-fifth ward of the City of Chicago, east of the Desplaines about five or six miles, I think, I
5514 do not recall exactly. I lived in Austin some five or six years. I have spoken of being familiar with the gauge readings that have been kept for many years on the Desplaines river. I meant the Riverside gauge readings. Being asked if the swamp which was assumed in certain of the questions is below that gauge, whether the drainage of the swamp would have any significance as to those gauge readings, will say if the outlet of the swamp was below, it would have no effect whatever.

Q. Suppose that the swamp area in the watershed under consideration was less than one per cent. of the entire water shed, would the draining of that swamp away have any material effect on the stream below?

Objection; hypothetical question founded on hypothesis not justified by the evidence.

A. It would not.

Re-Cross Examination by Mr. Cressy.

I am not familiar with the conditions of the Desplaines river in Lake County, Illinois, as to the swamp control
5515 that existed there in a state of nature. As to whether I am familiar with the ridges that surround the Desplaines watershed, especially its upper portion, so as to know whether that ridge may not consist of a little series of knobs with pot holes, and so on, would say, no, I am not familiar with the upper portion of the Desplaines. As to whether the conditions of the swamps and the pot holes between the knobs on the ledge would have some effect upon the question of the regimen of the stream and the effect of the draining of such areas, would say the condition of the swamps, their extent and character, would have more or less effect undoubtedly, on the relative run off. The conclusions which I have given in evidence as to the general effect of deforestation are the same as I have given in my printed publications.

5516 J. W. WOERMANN:

Cross-Examination.

On the blueprint from the Kiefer profile of 1867, the Adam's Dam is at point where rapids are shown to begin. It is not labeled "Adams dam"; recognized it by position with reference to head of Lake Joliet, being about two and
5517 three-quarters miles above that point. Dam Number 2 would be further up stream. Elevation of Adams dam is 92 Hennepin datum, as shown on my other profile of 1883, Exhibit No. 5.

59.682 appearing on Wilson profile signifies a datum plane 6 feet below lowest water of Lake Michigan, which would be approximately 65.682 minues Chicago datum.

5518 As compared with Chicago datum, Hennepin datum varies from 151.5 to 152.5 according to what level lines are compared. That would be 85.8 Hennepin datum. Wilson profile shows foot of dam; you asked me what crest of dam was. Foot of dam about 85.8 according to my profile. The point marked head of Lake Joliet, where I have 71.682 represents water surface at that point; does not represent bottom. 59.682 does not represent crest of dam rather than foot.

5519 Figuring out and drawing a right triangle shows difference of about 12 feet. Judge that misunderstanding of that profile arises from fact that the position at Adams dam does not come in the proper position with reference to locks of Illinois and Michigan canal. That is due to fact
5520 that two profiles, separate profiles, are platted on one sheet, length of river and length of canal not being the same. When get number of miles from common origin, cannot compare object on one with object on other.

As to whether Adams dam is not in proper position with reference to these locks, said dam is part of river profile, not of canal profile. Therefore cannot compare position of that dam with reference to position of locks. Adams dam
5521 not part of canal. Therefore is not and should not be shown thereon. It would come below the guard lock, which was opposite dam number 2. Little further to right of guard lock on this profile, if you move river profile down so Adams dam comes to that point, at other end of profile

would have junction of canal and river at La Salle separated by same amount that they are here, because that is common origin from which profiles are platted.

Dam No. 2 is in Desplaines river, but being part of canal system is platted in profile of canal.

Believe lock number 5 corresponds with dam number 1.

5522 The common point I refer to from which these were platted was where canal and river joined at La Salle.

Am familiar with profile at mouth of river where it indicates "Old Dam," meaning Beard's Dam.

Lock No. 6 and lock No. 7 are at end of Channahon level in village of Channahon. Lock No. 6 is lift lock, not guard lock.

5523 On profile of Illinois-Michigan canal, words "Kankakee River" are about eighth of an inch apart from words "Mouth of Kankakee River," on profile of river. Mouth of Kankakee not shown on canal profile. Words "Kankakee River" printed thereon; mouth itself not shown; words merely general designation.

5524 Words "Old Dam" correctly represents Beard's Dam with reference to lock number 7. Canal and river far apart at this point. Depends how you compare them, whether you run at right angles to canal or to river or some other way. When two things get miles apart, it is indefinite to say one is opposite to the other. Don't think profile shows where objects on one are with reference to objects on other. That was not in mind when they were prepared, because they are not opposite. Beard's dam indicated on profile of river by white knob on bottom of river bed, and the surface of the water is represented by a line. Unnecessary to examine original profile to ascertain whether top of little white knob projecting from bottom is coincident with line representing water surface, or whether there is not

5525 slight space between top of dam and surface of water.

This profile is blue print from tracing, which counsel for complainant has had made.

Q. I think the profile is indistinct upon this one point and that is my purpose in putting the question.

The WITNESS (continuing): The line which I have taken as indicating the Adams' dam is the line showing the upper end of the river profile.

As to whether there is no white line at the bottom where this profile ends extending from the bottom of the river to the surface of the river as is the case at the point "Old

dam" that counsel has called my attention to, would say there is a line here. The line does not begin at the river bottom and there is no line between the water surface and the river bottom. That is the line representing the
5526 water surface, or the surface of the water as it comes over the dam. Somebody has drawn a line in pencil at this point marked "Old dam" extending up from the bed of the river nearly to the surface of the water, but there was no line on the original.

COUNSEL FOR GOVERNMENT. You misunderstand the point altogether, Mr. Woermann, I am not referring to the pencil line which appears on here, I am referring to the white line which extends from the bottom of the river up. Do you see that white line extending from the bottom of the river? Is it not a fact that at the line you have taken as indicating Adams' dam, there is no mark whatever extending from the bottom of the river up to the surface of the water?

A. There is a vertical line. He simply does not continue the profile from the bottom of the stream. He stops at the foot of the dam. The white line represents the bottom
5527 of the river. I do not think there is any line extending from the bottom of the river to the surface of the water for the reason that he does not attempt to show Adams' dam, he stopped at the foot of the dam. Dam No. 2 and dam No. 1 are not on there either. My survey of 1902 to 1905 shows soundings at the mouth of the Desplaines river upon the maps. I also give the soundings in the rapids below the City of Joliet. Have seen and used Benyaurd, Marshall and Barlow surveys; in each case they depict line of proposed improvement. Those lines made to follow lines of deepest water as far as could be done without introducing serious curves or abrupt turns in line. Proposed improvement line was mean or compromise on line of deepest waters. Pre-
5528 sume in regard to Wilson profile and others they did not follow line of deepest water or thalweg. For profile of 1867 more was done than mere running of line of levels to fix up levels of stream. A survey that did not take soundings in river would be a travesty.

5529 Have heard of Preston's survey of 1857. Nothing in 1867 report to justify assumption that it merely took profile of Preston and ran a line of levels; tenor of whole report negatives such assumption. Do not think profile of river, which we have examined was inaccurate.

Whereupon counsel for the government called to the witness' attention slope in Lake Dupage of two feet and mentioned that later reports all show that the slope in Lake Dupage was something like .6 of a foot and inquired if there had been a survey made there whether the witness would think they would have determined a slope through Lake Dupage more accurately than they did, to which the wit-
5530 ness replied, "My own explanation of that particular thing would be that it was a mistake of the draughtsman in drawing in that water line; and I admit that on that point the profile is probably in error. I do not know what there was in the river at that time. There may have been some conditions there that we are not familiar with which justify them in drawing it that way.

As to whether on my own survey and own profile I show the water surface there, whereas on the Wilson profile of 1867 the water surface is shown as one continuous slope for a distance of three miles, would say, as I stated this morning that is a question of degree of accuracy. It indicates that they did not take water surface elevations at frequent intervals. I would not say it was a mistake. As to whether I would not say it was inaccurate on the basis of my own survey, and as to whether I, myself, showed the water surface and the way it sloped at the various points, would say that it is true. To assume for the purpose of the question that it is either seven or nine different slopes in the whole 16 miles from Joliet to the mouth of the Desplaines river, as to whether
5531 I would consider that rather a hasty piece of work in showing only that number of slopes in that distance, considering the character of the Desplaines river, will admit that for a perfect depicting of the profile more points should have been determined. As to whether I have not any personal knowledge that there were any more soundings taken than at these nine points, would say I am satisfied in my own mind that there were but I am unable at the moment to refer you to any reference.

COUNSEL FOR GOVERNMENT. I have the report here if you care to examine it. If you think it appears in the report I will be very glad to let you see it. It does not, as a matter of fact, appear in the report that they made any other soundings?

A. Which would not prove that they were not taken, even if it did not show, for the report is necessarily a very brief statement.

Q. Just answer my question, Mr. Woermann, will you please?

A. I do not think I stated in my report that I had one party or two parties making soundings at certain points.

(Motion to strike out answer as not responsive and question reread.)

5532 I do not know. As to whether it appears from the profile that they made any soundings at all, I will say, yes. It says "Levelled by H. G. Paulfrey and H. E. Worrall; drawn by G. A. Kiefer."

As to whether it does not show that there was any survey at all made, would say, reasoning on that basis, you could say there was not any transit line run, and yet the map shows the location of every transit station. As to why the profile does not state the authority if it was surveyed, would say, it does. It says merely "Levelled" but the title is of the character which usually appears on a profile. The profile has to do only with elevations, it does not mean that nothing except levelling was done on that survey.

Whereupon counsel for complainant introduced excerpt from report of 1867, passage on page 442 (reading):

"The Desplaines river rises in the State of Wisconsin and runs nearly due south, parallel with the lake shore, and generally not more than eight or ten miles
5533 from it, until it reaches a point about thirteen miles in a southwest direction from the mouth of Chicago river. Here is a slight depression, a mile or more in width, extending across from the Desplaines to the south branch of Chicago river, through which a part of the waters of the former river, in time of floods, flow into the lake. In this depression is what was once known as Portage Lake (so designated on the old maps of the country), but now better known as Mud Lake, a succession of shallow ponds on the same level connected with each other and with the Desplaines river, and extending about six miles towards Chicago river. This was the portage or carrying place between the waters of the lakes and the Mississippi made memorable by the early French voyageurs, and so well known to fur traders. But Portage or Mud Lake has ceased to exist, the shallow ponds having been drained, and the impassable swamps rendered valuable land."

(Reading, page 452):

"The liberal appropriation of lands by the United States, in 1827, to aid the State of Illinois in the construction of the canal from Lake Michigan to La Salle, and the subsequent expenditures of the State to accomplish the object, amounting to no less than $6,500,000, were based upon the supposition that the Illinois, below La Salle, was a good navigable river, and this large expenditure for the construction of the present canal would secure a good and cheap navigation between Lake Michigan and the Mississippi. Such is not the fact. There has been scarcely a season since the canal was
5534 completed, 20 years ago, when there has not been a serious interruption to navigation, for a greater or less period, from low water in the river, and as the country has improved, so that the surface water which formerly drained more slowly and continuously into our rivers has ceased to afford any considerable supply in summer, the evil has been becoming worse. The past season the navigation between La Salle and Peoria was almost suspended from the last of June to the close of navigation, and below this it was but little better. In fact, navigation was virtually suspended on the river for all practical purposes for about five months."

The WITNESS. Excerpts read show that at time survey was taken waters in Desplaines and Illinois were very low.

5535 My computation of 10,200 cubic feet per minute flowing below dam No. 2 in 1867, would not include any land water. I gave area of Desplaines watershed above head of Lake Joliet, including Hickory Creek, as 924 square miles; area of above Riverside about 633 square miles. I deduced from these areas volume of 116 second feet at Riverside, as corresponding to 170 second feet immediately below mouth of Hickory Creek and below dam No. 2. Do not mean right at foot of dam No. 2, but include Hickory Creek.

5536 In computing elevation of 12.1 at Riverside, for volume 116 second feet, base computation on Johnson's table in State case, which I know is substantially correct. Do not know as to whether it is used by Sanitary District. My authority for the statement that the depth on the bar below the Riverside Gauge with elevation 12.1 is .7 of a foot is that the gauge records for the Riverside Gauge year after year show that when the gauge got to 11.4 there was no

water going over the bar and there was nothing in the
5537 gauge records to indicate that that bar varied from 11 feet to 11.4. I examined the gauge records to determine that point very carefully. I said that the rainfall for 1867 was 30.2 and the average rainfall was 37.85 for the years between 1851 and 1895. This table which I took was made by Leveritt and appears in the report of Mr. Jacob Harmon. Mr. Leveritt states that his table is not a table of any one point in Illinois but represents the average of all the stations in the state together with some stations in adjacent states. On what I base my presumption that the average rainfall of the entire State of Illinois and adjacent states is more applicable to the Desplaines river basin than the rainfall record as taken at Chicago would say I do not recall
5538 making any statement as to which of the two tables would be preferable. I would answer now that the record for Chicago would be preferable. If Chicago record showed average precipitation from 1843 to 1910 or 33.99, and precipitation for 1867 was 22.41 inches, that would be better guide as to rainfall for Desplaines river in that year than record for entire state, but not as good as average of all stations in Desplaines watershed.

5539 Have produced no table for stations in Desplaines watershed, and don't know what stations there were there in 1867. Last annual summary of weather bureau for Illinois, shows stations in Desplaines watershed as follows: Antioch, LaGrange, Joliet, Yorkville, Aurora and St. Charles. Last three just outside of watershed, but so close not
5540 more improper to include them in average for Desplaines watershed than to include Chicago, which is outside of watershed but should be included because so near. Harmon states ordinary dry river flow on Desplaines from Riverside was 13 cubic feet per second. I read from Harmon's report, page 134 (reading):

"Gaugings of the principal tributaries and of the Illinois river at Peoria were made during the low water in October, 1899, and represent approximately the average conditions of these streams during the late summer and early fall months. These gaugings were taken with a Price's current meter which had been previously rated
5541 by the United States Geological Survey. The beds of the stream were accurately cross sectioned and readings taken at the following stations:

Des Plaines river—At wagon bridge about 1 mile below C. B. & Q. R. R. bridge, near Riverside. Cross section was also taken at C. B. & Q. R. R. bridge for gaugings at higher stages of the river.

Flow 13.21 cu. ft. per sec.

Turbidity .04.

Dupage River—At wagon bridge about 5 miles above the Illinois & Michigan crossing, and about one-half mile below the C. B. & Q. R. R. bridge, which point is above the influence of slack water of the canal dam.

Flow 32.77 cu. ft. per sec.

Turbidity—Clear.

Kankakee River—At C. & A. R. R. bridge near Lorenzo, Ill. Rain for three days prior to gaugings and the river 2 or 3 inches higher than previous to rains, but still quite low.

Flow 509.24 cu. ft. per sec.

Turbidity .032.

Fox River—At wagon bridge at Welden about 8 miles above its mouth.

Flow 321.95 cu. ft. per sec.

Turbidity .019."

5542 Harmon does not give dry water flow of Desplaines at its mouth in this table. At transcript 2533 (Abst., 1050) I stated:

"This same report of the State Board of Health states that the low water flow when it is dry in the summer time, is frequently as low as four cubic feet."

Q. Where is that statement in Mr. Harmon?

5543 A. Paragraph on page 183 indicates that it is less than four cubic feet. It says it goes entirely dry at 5544 that point nearly every fall. That is the only point I referred to.

5545 I read that passage into the record (reading page 183):

"The flow of the Illinois river at Peoria is made up of the combined flow of the tributaries above, including the sewage from Chicago which reaches the Desplaines river at Joliet by way of the Illinois river and Michigan canal. The Desplaines river at Riverside, a few miles above Joliet, goes entirely dry at that point nearly every fall and for days and weeks at a time there is no appreciable flow. On the DuPage river

which enters the Desplaines a few miles above the junction of the Desplaines and the Kankakee, no data as to the low water flow is at hand, except the discharge measurement taken under my direction in October, 1899, which shows 32.77 cubic feet per second. This flow is greater than that found in the Desplaines on the previous day. The flow in the Desplaines at Riverside was
5546 13.21 cubic feet per second. The waters of the Dupage are added to the Desplaines before they reach the Illinois, so that the natural flow in the Desplaines, where it joins the Kankakee to form the Illinois, at the time of the gaugings referred to were taken would have been approximately 50 cubic feet per second, while the amount of sewage flowing through the Illinois and Michigan canal was 600 cubic feet per second. Practically all of the flow of the Desplaines river, as it reaches the Illinois, is, therefore, during dry weather, Chicago sewage."

5548 Referring to my testimony in reference to forestry conditions in Desplaines river, as to whether I included in the investigation which I made, that portion of watershed in Wisconsin, will say it was not included in making up the twenty-five per cent. Had it in mind and made statement in reference to that, that wooded portion increased somewhat towards north, and including Wisconsin area would
5549 probably increase that percentage a little. Wisconsin plats not available for study. 136 square miles of Desplaines watershed in Wisconsin, or about 21 per cent. of watershed is north of Riverside. Being asked if I stated the proportion of forest in that portion of the watershed north of Riverside to be about in the neighborhood of 25 per cent., will say 25 per cent. was my percentage for entire watershed; it would be less south and greater north of Riverside, possibly increasing further north. Do not know just what it would do in Wisconsin. Think conclusions drawn from Land Office plat for entire watershed substantially correct.

5550 Might not be true as to single section. Lakes, ponds and swamps as a rule included in forest areas. Area of ponds outside forest areas small. Cutting down forest, draining swamps, ponds, slough, and so forth, had little if any effect on flow of Desplaines; by the expression very little I

mean so small that there would be no means of determining percentage, if there is any.

5551 Am generally familiar with work of Illinois State Geological Survey. Have all their reports. Know H. Foster Bain, who was formerly director State Geological Survey. Never heard of his being professor at University of Illinois; he was located at Urbana. Have not read his article entiled "Stream Improvements and Land Reclamation Problems in Illinois, by H. Foster Bain." This article appears in the year book for 1907 of the State Geolog-

5552 ical Survey, Urbana, University of Illinois, 1908, and at page 57 of said volume, Bain states: "While there is no valid evidence that more rain is falling now than in earlier days, this hurrying of the water off the upland and into the valleys has produced congestion in the latter. Where once were clear open rivers with steady normal flow, suitable for navigation, there are now winding, brush-choked streams, with abnormal flood and low water stages."

Presume Bain made study of these conditions. His expressions would be entitled to weight among engineers and persons investigating stream flow. He is talking here about

5553 bottom lands, about Wayne County, and streams choked with brush, and so forth.

Upon request of counsel for complainant, witness read the paragraph immediately preceding that just read (reading):

> "Ruining the rivers—It is an old and well established principle that water, usually so friendly and helpful, is none the less a natural enemy, and that each may protect himself and his land against its ravages as he will. Each land owner must accept and care for the water falling on his land or coming down on or across it in a natural stream channel. He may, however, in turn, send it on to his neighbor below and the neighbor must accept the consequences. Through all these years, not far now from a half century, our uplands have been drained by the simple process of hurrying the water on into the valleys."

5554 Don't know whether or not there is anything in State Geological reports respecting area of forests. As to whether where I refer to pot holes, I meant the large proportion of swamps and swales and sloughs that lie on the ridges and uplands among knolls and between depressions of the unmodified drift as left by glacials would answer, yes except

as to the words "large proportion." Cannot state what the proportion is; have made no investigation to determine. Some pot holes depicted on land maps, not all of them.

When I stated in substance that drainage of little basins increase run-off of streams, and that presence of forests diminish evaporation of such basins, I meant that when
5555 depressions are drained by ditches or tile water runs into river. In natural condition water evaporated. never reaching river. The effect of forests on those pools of water was to keep water longer in these pools than where they were in open exposed to sun. Large proportion of pot holes never drained into rivers, because of impervious nature of subsoil. What did drain reached river slowly to very small extent. Have seen water in pot holes at end of long dry summer where hole was not over a thousand feet from edge of 150-foot bluff. Don't think
5556 any water from that hole ever got into the river. Do not contend that there were not times when pot hole water level overflowed lip and down into brook connecting with the Desplaines. In all swamps and ponds in every water shed of an impervious character when water level is below lip of pool, only water reaching streams is that which seeps through.

5557 Believe portion of water that seeps through pot holes in Desplaines valley would be very small; may have been some. Did not measure extent of swamp land depicted in Desplaines river basin. Think that important as bearing on natural condition of Desplaines watershed as compared with present condition.

My attention is directed to Wilson and Gooding's report appearing in the report of the Chief of Engineers for 1868, page 452, which reads (reading):

> "As the country has improved so that the surface water which drained more slowly and continuously into our rivers has ceased to afford any considerable supply in summer, the evil has been becoming worse."

5558 That tends to show that in the opinion of Wilson and Gooding that drainage of these swamp lands in Desplaines watershed had some effect on natural condition. Gooding was United States Civil Engineer, and chief engineer of the Illinois and Michigan Canal for about thirty-two years. Think he was familiar with Desplaines watershed from Chicago south. So far as I know standing of

Wilson and Gooding among engineers is good. Don't
5559 know where Laughton's Ford is; I have never made a particular search or investigation to find out where it was. I do not know sufficient about it to say that it was on the Desplaines river below Riverside. It appears in Bucklin's letter in the Canal Commissioners' report of 1900 and it there states that Laughton's Ford was eighteen miles above Cache Island.

My attention being called to the question which was as to whether or not Laughton's Ford was below Riverside and having seen this letter of Bucklin will say that it would be below Riverside in the neighborhood of Willow Springs. As to whether in the various gaugings that were made of the Desplaines and adjoining river systems, such as the Calumet and the Fox and the tributaries of the Desplaines such as in Dupage, these measurements were made to ascertain the minimum flow there was in thase rivers, I would say
5560 they were made to determine the low water volume, not usually the minimum volume, however.

(Examination of the witness suspended for the purpose of offering other evidence.)

COUNSEL FOR COMPLAINANT. Will not require defendant's counsel to prove that the files presented are of the Chicago Daily Tribune, Chicago Daily News and Chicago Times.

COUNSEL FOR DEFENDANT. I now offer excerpt from Chicago Times, of Friday, February 15, 1889, page 3, left hand column, headed "Enemies of the Bill," file had from the Chicago Public Library.

Objection, incompetent, irrelevant and immaterial; unsigned newspaper article; is report of conference of certain men, several of whom are living and capable of taking stand if testimony is material. Not the best evidence.

(Reading):

5561 "Springfield, Illinois, February 14th. Enemies of the bill.

The Chicago Drainage Scheme likely to Meet Some Opposition in the House.

Joliet Dissatisfied by some amendments, by the special amendment feature has some foes.

The morning debate in the House on the subject—the anti-trust bill to be reported favorably.

Three hours were spent in a conference tonight be-

tween citizens of Chicago and Joliet in the effort to arrive at amendments to the Drainage Bill that would be satisfactory to both cities. There were present at this conference Mayor Roche, Mr. Mooney, Commissioner Riley, and Messrs. Hurd, Medill, Cooley and Ewing. The point which the Joliet people insisted upon was that the ship canal should go to Lake Joliet, and that the trustees should not have any rights to dockage or water power outside of the drainage district. They finally so far receded from that position as to give to Chicago the water power and dock privileges created so far as the channel should actually be constructed, still insisting, however, that it should go to Lake Joliet. But the matter was finally settled by the agreement that so far as Chicago shall extend the canal, she shall have all these privileges, but they shall not extend beyond the point where the main work actually terminates Chicago reserves the privilege of going to Lake Joliet if it should desire."

5562 (It was agreed between counsel that Mayor Roche of Chicago, there referred to, now dead; that Medill. editor of Tribune, Harvey B. Hurd, one of authors of Sanitary District Bill of 1887, and Mr. Mooney, are dead; that Cooley and Ewing and Riley are alive, and that article had to do with Sanitary District Bill of 1889; that the article leads up to the amendment made in that bill with reference to water power as it appears in the bill.)

5563 COUNSEL FOR DEFENDANT. I now offer in evidence from Chicago Tribune, in volume of October-December, 1888, from the issue of December 7, 1888, page 4, extract from editorial at bottom of column 5 and top of column 6.

(Objected to on the ground that it is incompetent, irrelevant, immaterial and that it consists of an unsigned editorial in a daily newspaper and not the best evidence.)

Counsel for the government thereupon inquired as to the purpose for which the editorials were offered. Counsel for defendant replied that these newspaper extracts were

5564 to be used for any purpose for which they will be pertinent, showing among other things part of the history leading up to act as it appears in statute books, and to answer proposition that owners of property down river ought not to have benefit of increased water sent

down; as tending to show it was understood and agreed at time that private owners should have use of water turned down river.

Objection; same as heretofore.

(Agreement between counsel that Medill was Editor in Chief of paper at time of publication of this issue.)

5565 COUNSEL FOR DEFENDANT (reading): "The attitude of Chicago in the present discussion as to what disposition shall be made of her sewage is marked with singular magnanimity, which ought to shame some of those who have been holding conventions and blustering as to what they would and would not allow to be done. The city has the right to drain through the canal and the river. The state orders it to spend money that it might do so and it is complying. All the sewage goes southwestward with no annoyance to the city.

The present facilities will suffice us for many years. * * * yet, though Chicago has this certainty of sufficient drainage and pure water supply it makes the voluntary offer that it will tax its people and raise money with which to build a larger ditch from here to Joliet so that there may be a steady flow of 200,000 or 300,000 cubic feet a minute, so diluting the sewage that goes down that the keenest nosed faultfinder can detect no trace of impurity. It makes to Joliet the gift of an extensive water power and offers to start her on the road to manufacturing prosperity. Can one believe that this free-hearted generosity is so misconceived and misinterpreted that those who are to be benefited by these great gifts reject them and insist that they must be increased tenfold before they will accept them? Few men, or few collections of men are in the habit of pressing gifts on people when they have been once rejected, and if the residents of Joliet and the Illinois valley do

5566 not accept the present chance they may not get another as good for some time."

I now offer an editorial in the Chicago Tribune, Volume January-March, 1889, the particular number of the Tribune being that for Monday, January 21, 1899, and the article in question appearing in an editorial headed "Our Chicago De Lesseps," which I read.

(Reading): "The News says: That to widen and deepen the south branch so that it shall have a capacity

of two hundred thousand cubic feet a minute to the canal mouth; to dig a vast canal 200 feet wide and 16 feet deep from Lake Michigan, along, say, 39th street, condemning the land and paying millions for it, to the south fork of the south branch, and down that to the canal mouth; to dig a great ditch from this point to the Cicero limits and on to Joliet, 27 miles further, 200 feet wide, and about 22 feet deep, mostly through solid rock, including all land damages within and without the city, and all damages for overflowed lands down the valley, with all rock and earth cutting, piling, etc., would cost 'from $20,600,000 to $24,950,000.'

This estimate is in the air. It does not say how much the cost of deepening and widening the south branch will be, how much the new 200-foot wide cut from the lake to the canal, or how much the rock cutting which we strike after leaving the summit will cost. This is too
5567 big. Before we begin breaking eggs, we must know the size of our omelet. We are asked to begin a work which in comparison to our means is as tremendous an undertaking as the Panama Canal is for France. We are now asked to make a channel wider than that which De Lesseps proposed to make, and nearly as deep. We have over 20 miles of limestone rock to cut through lifting the stone from a depth of 22 feet below the water surface and disposing of the stuff in a ridge 50 or 60 feet high. The job, as estimated by 'The News' will take 11 years, and we are told that it will cost from $20,000,000 to twenty-five millions, the latter being a little over four times what Chicago raises by taxation each year.

But another and better authority than 'The News' estimates that to carry out the work on the plan proposed by 'The News' to the city limits alone, with land damages and construction combined, will cost more than the twenty-five millions which our Chicago De Lesseps puts down as the total cost of the work. That when that money has been spent within the city limits comes the further task of making the 27 miles out through the limestone down to Joliet. The city did a little surface scratching when it deepened the narrow Illinois and Michigan Canal eight feet. That job cost it over three million dollars. Now a man with a light heart and a fluent lead pencil invites it to make a 22-foot water

channel excavation 200 feet wide, which from the surface would be 25 to 30 feet deep and assures us that
5568 it will cost but a bagatelle.' The trifling sum of twenty-five million will do it all.

'And there will be offsets. There will be water power.' Thus it was provided by the monstrous Hurd bill, which 'The News' supported, that we were not to have a water power. It was all to go to the people down the valley, as the price of their consent that Chicago might abate the sewage nuisance so that it would no longer smell bad to those living on the banks of the Desplaines. They still insist on it."

(Objected to on the ground that it is incompetent, irrelevant and immaterial and consists of an unsigned editorial in a daily newspaper and is not the best of evidence.)

Upon request of counsel for complainant the following portion of foregoing editorial was read:

"Many of the valley people claimed that this 600,000 cubic feet added to the natural flow at certain times of the year will flood hundreds of thousands of acres of valuable bottom land and spoil it. They must have the damages, they say, and the damage suits must not be brought here, but in the county where the mischief is done, so that a local 'unprejudiced' jury may fix the damages. How many millions of dollars must be pay out in this way? Where is the statistician of 'The News' and why does he not come forward with his detail figures? It was admitted two years ago that the scheme contemplated by the Hurd bill would cost at least forty millions of dollars."

5569 COUNSEL FOR DEFENDANT. I now offer in evidence from volume Chicago Tribune, April—June, 1889, issue of April 11, 1899, editorial page, third column, editorial headed, "Joliet Wants the Drainage Canal." (Reading):

"It appears from interviews with the leading business men of Joliet that they are with hardly an exception opposed to the crank or silly notions of Mayor Paige, whose term of office, they say with pleasure, will soon expire. Of those business men who are fighting the drainage plan a few are influenced by purely selfish reasons. They want the channel carried a little further than the bill now provides, so they may share in bene-

fits which they see others will reap. Were they just a little further north they would be sturdy advocates of the scheme.

The argument of the business men who favor the adoption of the drainage bill is an intensely practical one. They say that before the deep cut gave them Chicago water the water power of Joliet would not employ
5570 twenty-five men, now there are a large number. The passage of the bill would give the city from $300,000 to $450,000 worth of water power per annum, says one man: 'Water power is now worth $15 to $20 per horse power in Joliet. This would reduce it to one-half that price.' Then manufacturers would flock there. Working men would be given employment. Hundreds of houses would have to be constructed for them to live in. Shops would be started to supply them with goods. The population of Joliet would increase even more rapidly than it has been doing during the last ten years.

The business men are also quick to see the use of such deepened and enlarged canal as a regulator of freight rates and are not so much in love with the Rock Island Road or its attorney, Sanford, of Morris, as to wish to trust themselves to its tender mercies with no chance of escape if those mercies turned out to be cruel. They say that they now have grain rates on the canal of 1-1/4 cents a bushel. When the canal closes the railroads charge three and four cents and if the canal were abandoned it would be six to eight cents. Nor do these men take any part in the idle talk about 'overflows' at Joliet. They say that it is raised only to bulldoze Chicago into improving some property in their city.

5571 As for Chicago sewage, what they ask is its satisfactory dilution, not its stoppage. They say they have been bothered by it at times in the past. But they have urgent need of the increased water supply to dilute their own sewage. For nine months of the year there is not water enough in the Desplaines to take care of the sewage of the penitentiary, to say nothing of that of Joliet. Therefore if no water came to them from Chicago the growing city would be drowned out by its own filth. As for disease from the sewage, in spite of the ravings of the Joliet health officer, with his bacilli and his ptomaines and his spores, they say there is less than there

was in the old days before the deep cut was made or the Bridgeport pumps started."

Objection; same as foregoing.

COUNSEL FOR DEFENDANT. I now offer in evidence volume Chicago Daily News, January-June, 1889, morning issue February 16, 1889, page 1, of article headed: "In Favor of the Bill. The Drainage Act Advanced—It Passes to a Sec-
5572 ond Reading—Amendments Adopted—Other Doings of the Legislature—Morris Declares for Chicago's Relief." (Reading):

"Special to the Chicago Daily News, Springfield, Ill. Feb. 15—" 'The whole matter is in the best possible shape,' said Mr. Cooley, referring to the drainage bill, upon the adjournment of the House today. Then he added: 'No unfriendly amendments were adopted. The compromise propositions which we had agreed to, were put in and also those in the interests of Joliet which they especially desired, and to which we found no objection. The others were merely verbal amendments to correct phraseology and perfect the bill.'"

Then I omit, and continue reading further on, as follows (reading):

"Mr. Mooney offered an amendment to Section 5, the object of which was to prevent the district from exercising dockage and water power rights beyond the point to which the channel actually extended, and it was adopted.

Mr. Cochenour wanted to further amend Section 5 by stripping the trustees of all powers or control of docks, water power or anything else outside of the boundaries of the district, but the amendment was defeated."

5573 Objection; same as foregoing.

(It was admitted and agreed between counsel that the Chicago Daily News was then, as now, under control of Victor Lawson, and that Mr. Cooley who was quoted in foregoing excerpt as saying: "no unfriendly amendments were adopted," is the same Cooley present as complainant's witness, though not admitted he made such statement.)

Whereupon counsel for the government moved to strike out all the clippings just introduced from newspapers on the ground that they were not the best evidence; that it does not appear in any case who was the

author of the particular editorials or writings; that it does not appear that such authors are dead and therefore unable to be called upon the witness stand to testify; and further on the ground that these articles are all incompetent, irrelevant and immaterial upon the issues in this case.

5574 Witness J. W. WOERMANN, resumed the stand.

Cross-Examination by Mr. Cressy (Continued).

Do not know whether or not early and late measurements of Desplaines and DuPage rivers show that flow of DuPage is better sustained than that of Desplaines. From description in State Geological Survey reports, should say sub-soil of DuPage is similar to that of Desplaines above junction of the two rivers. Think would make no distinction between lower and upper Desplaines as to character of sub-soil.

5575 Would say sub-soil of DuPage system was impermeable. Would say that the statement of Gooding in communication dated December 10, 1838, in Canal Commissioner's report of 1900, page 155, that, "A feeder will be taken into the canal from the DuPage, about three miles above the crossing. The last season has shown this stream to be one of the most permanent in the State, and it can be introduced as a feeder at a very moderate expense," would have weight for the one year he speaks of. That would show that for that one year the DuPage river had a well sustained flow.

5576 Conclude from State Geological Survey that watersheds of Long Run, Hickory Creek, Jackson Creek and Riley Creek differ little in geological formation, being all covered with glacial drift. Don't know if it is fact that glacial drift is much more permeable outside of ridge which runs through Lemont west of Desplaines, than within ridge.

Referring to the statement by counsel for the government that I testified that the flow of water in the Desplaines river had been increased above Riverside by the water supply of towns from artesian wells, to enumerate the towns which have thus supplied the volume of water from artesian wells, would say that my basis for that statement is the report of United States Geological Survey which states that every town on the Desplaines river gets its supply from artesian wells with the exception of a portion of Joliet. As to whether

or not of the United States Geological Report does state that the flow of the Desplaines has been increased by the fact that these towns get their water supply from artesian wells, would say I think it does, but if not there is a clear inference.

5577 I will ask you to point out if it does, where it does and while you are looking over that State Geological Report I will ask you to name the towns that get their supply from artesian wells.

COUNSEL FOR DEFENDANT. I object to the question because it is a double question and the two parts of that question have no relation to each other and can not be answered by one answer.

COUNSEL FOR GOVERNMENT. All right, you may answer them as separate questions.

A. The particular statement that I referred to is not accompanied by the statement that it has increased the flow of the stream for the very evident reason that the title of the entire report is the "Quality of the Surface Waters of Illinois," and this particular part has to do with the sources of municipal supplies. So that the run-off in the stream was not pertinent to this particular passage.

5578 The particular document to which I refer and the particular page to which I refer is entitled "Water Supply, Paper No. 239, of the United States Geological Survey," entitled "The Quality of the Surface Waters of Illinois, by W. D. Collins, issued in 1910." Page 26 under heading "Desplaines river," second paragraph (reading):

> "Municipal Supplies.—The cities along the Desplaines river obtain their water supply from deep wells, except that Joliet derives part of its supply from Hickory Creek. It is not likely that the water from Desplaines River can ever be used for municipal supply except in its upper course."

As to whether it does not here enumerate the towns which receive their water from artesian wells, will say it enumerates them negatively by excepting only a portion of one town, it does not specifically by name state what the towns are to which it has reference. I still infer that the volume of water would be increased in the Desplaines river by the fact that certain cities or towns along its bank obtain their water from deep wells.

5579 I adhere to my inference that water lying in Desplaines is increased by water from towns obtaining

supplies from deep wells. Heard portion of Mead's testimony. I remember his statement, transcript 5494 (Abst., 1997):

"I doubt if the additional waters that are secured from artesian wells and find their way ultimately into the streams, would have any more effect than the forests would have."

As to whether I disagree with Mead, hesitate to answer; don't know what was in his mind when he made state-
5580 ment. If he meant artesian well supply would not increase stream flow more than forests would, I disagree with him. I think additions coming from sewers is well recognized addition to supply of stream; while the addition which a forest adds is a much debated question. I disagree with Mead as to the extent of the effect of deforestation. In my opinion on volume of water in Desplaines due to inhabitation, I took into account effect of tilled ground, which is that growing grain absorbs less water than forest trees and causes water to reach stream more slowly. Tillage accompanied by tile drainage usually increases stream water supply.

5581 The passage I attributed to Randolph to the effect that volume of Desplaines would pass through six inch pipe, is contained in "A concise Report on Organization, Resources, Constructive Work, Methods and Progress of the Sanitary District, dated September, 1903, prepared by the Chief Engineer," signed I. R., page 12 (reading):

"The Desplaines Valley is traversed by the river from which it takes its name—a stream with wide fluctuations with no constant and reliable fountain supply. During some seasons its whole discharge would pass through a six inch pipe, and at others its volume reaches 800,000 cubic feet a minute. Then it rolls majestically along, flooding the whole valley. Such being the situation, control of this stream was a condition precedent to the successful prosecution of the work upon the main channel."

COUNSEL FOR GOVERNMENT. I will ask counsel if they will have that document here so we may examine it.

COUNSEL FOR DEFENDANT. I don't know whether it is available to us or not. I have it listed among the evidence in the state case that will be used by us in this case. I suppose it can be found in the Sanitary District here. I have never seen a copy of it except the one we had in court.

5582 COUNSEL FOR GOVERNMENT. I would like to have that produced because I would like to cross-examine the witness further upon this particular passage.

Have never seen Desplaines entirely dry, though have seen DuPage in that condition when located at Dresden Heights on construction of Economy Company's dam; in the fall of 1907, at Channahon below State Dam.

As to whether all of the water then in the DuPage river was passing down the Illinois and Michigan Canal from the State Dam, I would say I do not know whether any
5583 water was coming down the DuPage river or not. Did not see DuPage above said dam. Have never seen Jackson's Creek, Hickory Creek or Rock Run entirely dry. As to whether it is a fact that Hickory Creek is today used for supplying part of the City of Joliet with water according to this State Geological Report, heretofore referred to, will say all I know about it is what is contained in that statement.

5584 Discussing Riverside gauge readings I took as period of navigation April 1st to December 1st, which corresponds with official period of navigation on Illinois and Michigan canal which is period during which canal is maintained and operated for navigation purposes. Coincides with period Illinois is navigated. Presume Summit level of Illinois and Michigan Canal was used after December 1st when not
5585 frozen. Also have seen it out of business before December 1st because frozen; the year I was located at Dresden Heights. If not frozen would be no objection to using Desplaines or Illinois after December 1st or prior to April 1st; would hardly depend in each case on whether or not river was frozen, because boats to do business must know beforehand what it is going to do, and it is so uncertain before April 1st and after December 1st that boats do not try to run; do not wish to take chances being caught in ice. Know
5586 of no official figures on duration of ice in northern Illinois streams. Ice in upper Illinois generally goes out about March 1st; river often freezes after ice first goes out. In some years it is true that in latter part of February and March there is little or no ice in upper Illinois or Desplaines; not always true. Don't know whether drainage canal has ever been frozen over since it was open in 1900; admitting that it is, it is not the Desplaines river.

5587 During winter was at Dresden Heights, river was jammed full of ice from bank to bank, though didn't

freeze over solid, yet absurd to speak of it as navigable. The point full of ice was entire stretch from mouth up to Shannahon; above aqueduct piers in large patches; piers would always pulverize it, and below them always badly broken up. Would have been no ice there if piers had been removed; would have floated out in large pieces, though would not melt. Have seen Desplaines frozen from shore to shore since 1900;
part of it came from above, part formed there. Shan-
5588 nahon level I mentioned as filled with ice, is no more level than any other stretch of Illinois-Michigan Canal. There is a very noticeable current in rowing a boat up-stream. I believe that navigation on Lake Michigan at Chicago extends after December 31st and begins prior to April 1st, some years in the case of tramp boats, but is generally without insurance, indicating the extra hazardous nature of such navigation. Could be likewise done on Desplaines river under same conditions.

5589 Have general knowledge of insurance rules respecting river boats. Steel barges on Mississippi get low rate compared with that of wooden boats. Companies won't insure cargo when danger of ice on river. As to whether or not insurance rates go off December 15th and come on whenever Mackinaw Straits are open, I think date has varied at times. Do not think that was case in 1896, when I was stationed on Chicago river. Partial reason for rule on
5590 lakes is danger of storms during winter, which are likewise dangerous on streams; river boats become unmanageable, and more apt to be lost in bad place than lake vessel because practically all out of water. Have had experience with river steamers; one year during vacation while I was at school was clerk on steamers between St. Louis and New Orleans; later made trips on Mississippi and Missouri. During survey for 14 foot waterway from Chicago to Mississippi had three steamboats under by direction and three-quarter boats; cared for them through several storms. Period of navigation
5591 on Mississippi about same as I used in table. Depends on water in Mississippi; was no arbitrary period. Don't know that boats on Lake Michigan run regularly between Chicago, Milwaukee, and other points throughout the winter.

5592 Merchants Exchange of St. Louis has kept record of duration of ice on the Illinois river for great many

years. Cooley's 1896 report on Deep Waterway, gives much data relating to period that ice covers various waters in this latitude. At some of these points period would run over forty to sixty days; average period probably not over two months at St. Louis, but is irregular and can not be fixed as coming between definite dates. Think Cooley's Report of Internal Improvement Commission, states navigation is stopped by ice in the Chicago latitude for about five months in the year.

5593 Am generally familiar with the precipitation records during the period for which the Riverside Gauge was kept. It is not true that the period for Riverside Gauge, from 1886 to present, is one of lowest precipitation that we have had in last sixty-eight years; would have to break period into shorter periods. During that interval were some remarkably wet years; some were particularly dry years.

5594 Seddon who prepared the profile of 1899, made a survey of the Desplaines in 1899 and 1900; that was Barlaw Board survey. Portions were officially published by the United States; an index map to the large sheets was published with the report; large sheets never lithographed or attached to any official report of United States Engineer's office.

5596 Seddon took soundings, many of them by men wading in river, some from a skiff; got elevation of river bottom at frequent intervals from Joliet to mouth.

As to whether I would call it a precise survey, I would say I am not familiar with the expression. To characterize the kind of survey which Mr. Seddon made, would say it is a survey of the kind which is usually made in connection with reports on proposed improvements of rivers. To explain what I mean, would say, he had a number of parties—topographical parties determining ground elevations on each side of river, so that they could be platted and contours drawn. Then he had a hydrographic party getting similar data for river surface and bed. Had two level parties

5596 running levels, establishing bench marks, furnishing basis for operations of topographic and hydrographic parties with reference to elevations. No precise levels were run on Illinois or Desplaines until my survey was made. I used Seddon's maps as basis of my revised and corrected maps, which were issued with my report. I added considerable to topography he had not taken; my instructions were to take everything up to flood line of 1844; in some cases Seddon did

not go that far; added many miles railroads, highways
5597 and fences, not shown on Seddon's map; added names of all land owners and houses, all tributaries and islands. Triangulation stations and precise level bench marks established under my direction, and other details. I was instructed to take the topography of all lands lying below flood line of 1844 in Desplaines valley which in general meant back to the bluffs. Don't think Seddon used Keating's survey of Sanitary District, made in 1896, as basis for corrections, etc., concerning Desplaines river. Have seen many field books filled with level and topography
5598 notes taken by his parties; part of them related to Desplaines. I examined them and know. It is not fair to say that all I did on Desplaines in survey of 1905, was examination of data left by Seddon and reports of various parties I had in field, taking topography, property owners, and other data, with an occasional visit to one or two of the parties on the Desplaines. During time my parties were in field north from dam number 1, at Joliet, I was in that part of valley perhaps once a month. Am unable to give times and places. Parties were in field probably
5599 year and a half from time secondary triangulation party entered area, until last party finished. A great many were working on topography along banks, and not in river itself.

I testified that volume of water represented on Seddon profile below mouth of Jackson Creek was 800 feet per second. Assuming that the total area of Desplaines water shed to that point is 1,026 square miles, don't know what average flow of stream there would be. Know of no reliable method to figure it from data given.

5600 Ordinary run-off of streams of character of Desplaines varies from five per cent. to seventy-five per cent. of rainfall that falls on water shed, water sheds being the area.

As to whether I can undertake to state it closer than 5 to 75 per cent., meaning now the average for a great number of years, would say that average would probably be in the neighborhood of 25 per cent. That would amount to in depth of water on the water shed as a matter of mathematical computation to about 25/1000 of an inch per day, for a long period of years on the assumption that run-off would average 25 per cent. of the rainfall. For a year that would

be a depth of the water shed of about eight inches, taking 32 inches as the run-off for one year for this purpose.

5601 Whereupon counsel for defendant offered in evidence the following extracts from The Lakes And Gulf Waterway, as related to the Chicago Sanitary problem, dated May 1st, 1891, by L. E. Cooley, (reading page 52):

"Low Water Volume.—The Desplaines has been measured twice for low water; in 1887, 256 feet per minute, and in 1879, 339 feet per minute, both between Riverside and Lockport. The extreme low water at Wilmington on the Kankakee for twelve years, 1871-83, was 25,200 feet per minute. A measurement made Sept.

5602 9th, 1867, at the mouth of the Kankakee in connection with Gen. Wilson's survey, gave 27,377 cubic feet per minute. The water was said to be lower in 1867 than for the previous twelve years. The quantity in the Fox river, September 17, 1867, was 31,539 feet per minute. The Mazon was practically dry.

From May 13-28, 1887, at Morris, the water was within two or three inches of the lowest since 1856, and it is doubtful if the land water exceeded 15,000 to 20,000 cubic feet per minute or 250 to 350 feet per second. At least sixty per cent. of the low water volume passing Morris in 1887 came from Lake Michigan by the Illinois and Michigan canal, and probably one-half of the volume in ordinary low water years comes from this source. A measurement has been made at La Salle by the canal authorities before the canal was deepened, of 37,980 cubic feet per minute, and doubtless Lake Michigan water has represented one-half the volume passing in some recent low water periods."

Also from page 53 (reading):

"The record shows that about one-half of all notable rises in fifty-six years, have occurred at the spring break up, when the river could not be navigated on account of ice, and that floods which have occurred at other times of a height of fourteen feet and over, have not for fifty-six years, averaged three days out of banks,

5603 and probably for one-half this time, not above fourteen feet, or over the limit of 30,000 to 35,000 cubic feet per second, discharge, which is stated as the navigable limit in the above extracts."

From page 57 of the same volume (reading):

"Low Water Determines Ruling Navigable Depths.—The long low water period, and the extremely small volume of flow at such times, makes it necessary to contemplate the full depth to be relied upon as available for navigation, the same as for the Chicago Divide; and also, to use water from Lake Michigan, even for an exclusively slack-water scheme of small proportions. The present small canal has always had to rely on this source down as far as the Kankakee, and even below this point, the natural supply may, at times, be quite inadequate for any considerable commerce. The high water period is altogether too brief and uncertain to possess any availability for navigation greater than will be due to the minimum depths which the project contemplates."

And at the same time I want to read one or two extracts from The Lakes and Gulf Waterway, which has been identified by L. E. Cooley, the particular pamphlet being dated Chicago, January, 1888. I read from page 9 (reading):

"The long low water period of the Illinois, often half the boating season, and the small depth on the bars (two feet to four feet) largely restricted the canal to
5604 local commerce. In 1852, the general government made a small appropriation for dredging but it does not appear that either the state or nation made farther effort until the events of the civil war brought the military utility of the route prominently to the front. In 1866, Congress ordered surveys and a project 'for a system of navigation, by way of the Illinois river between the Mississippi and Lake Michigan, adapted to military, naval and commercial purposes.' General J. H. Wilson made a preliminary report in 1867 and in conjunction with Mr. Gooding, engineer of the Illinois and Michigan Canal, a final report in 1868.

The examination and surveys were comprehensive including not only the main route to Chicago, but also lines up the Fox, the Kankakee and to the Calumet. The Fox and Kankakee routes were not found practicable, and the Calumet line was not regarded favorably on account of absence of harbor facilities and greater length, and because it 'would cost a great deal more.' On account of 'the necessity for rock excavation * * * sufficient to preclude the selection of that route for the enlarged canal.'"

I read now from page 2 (reading):

"Effect on Illinois river.

During a large part of the year the Illinois river is shallow, sluggish and at times stagnant and unhealthy, and unfit for profitable navigation. The large volume
5605 of water which will be steadily poured into it from the lakes (600,000 cubic feet per minute) will make it at all times a capacious and vigorous stream, purifying itself, constantly promoting its own improvement, navigable for the largest Mississippi steamers, the central artery of the lakes and river commerce and a naval station for lake and river gun boats."

And also from pages 22 and 23 (reading):

"From 1871, when the deep cut was completed, to 1884, the canal carried by gravity to the Illinois river from 15,000 to 35,000 cubic feet per minute, sufficient to raise the natural low water at La Salle from five inches to one foot, and half as much in the lower stretches of the river. From the spring of 1884 to the summer of 1887, the water pumped has increased from 30,000 and 40,000 cubic feet to 60,000, the latter amount being sufficient to raise natural low water at La Salle about one and two-thirds feet.

General Wilson finds that the natural low water volume of the river below La Salle will only provide a channel four feet deep and 160 feet wide by dredging through the bars. Major Lydecker finds that the low water volume below the Copperas Creek Dam (Oct., 1879, 1,566 cubic feet per sec., of which one-sixth came from Lake Michigan), will supply a channel six feet
5606 deep and 200 feet wide through the bars. The discrepancy between his results and those of General Wilson is ascribed to the omission of the stretch above Copperas Creek, then slackwatered; but certainly the contribution from the canal in 1887, not less than half the total volume passing La Salle, would have enabled a six foot navigation to be obtained from La Salle to the mouth."

On pages 32 and 33 (reading):

"4. The present natural water supply of the river is inadequate to the present pollution (occasioned by stagnation aided by the dams and sewage of the towns along its course) without the water supplied by the Illinois and Michigan Canal from Lake Michigan even

if the river received no sewage from Chicago. This supply was probably over one-half of the low water flow past Peoria during the low water season of 1887.

At Morris, the water was as low as known for fifty years, notwithstanding that the flow in the canal was raised to 60,000 feet per minute or considerably in excess of former years. The low water discharge of the Illinois and the proportion of canal water is given in testimony referred to in section two, page eleven *et seq.*"

5607 J. W. WOERMANN (resuming):

Cross-Examination by Mr. Cressy (Continued).

Q. From the estimate that you have given of the fall of eight inches on the water shed of the Desplaines river valley, what would be the flow of water at the mouth of Jackson's Creek?

Objection; incompetent, immaterial and irrelevant; not proper cross-examination. Does not contain necessary hydraulic elements on which to base conclusion.

5608 The WITNESS. For the purpose of this computation I assume area to mouth of Jackson Creek as 1,026 square miles, which includes Jackson's Creek. If computation is correct, total flow per average year on the assumptions given would be 13,939,000 cubic feet per year.

Q. What would an average flow be, say reduced down to per second?

5609 Objection; average would throw no light on issues of case. Evidence shows at times of flood run-off is rapid, and condition of river subject to frequent changes, at times flowing at rate of 800,000 feet a minute and at other times no flow, and in some years over half of eight inches will run off in a single month.

A. If have made no mistake in computation, it would be 610 cubic feet per second.

5610 The average rainfall for the Desplaines basin is 31.82, at least for the period from 1890 to 1899, covered by Harmon's report. Am unable to say whether that was a period of deficient rainfall, without the aid of a table. Some years drier and some wetter than usual.

5611 The annual Weather Bureau rainfall report shows the precipitation for various stations, as follows:

Aurora 28.11, a deficiency of 7.36 inches,
Chicago, 26.86, a deficiency of 6.42 inches,
Joliet, 24.29, a deficiency of 9.06 inches,
St. Charles, 25.73, a deficiency of 11.16 inches,
Yorkville, 25.93, a deficiency of 8.14 inches.

5612 These five stations would show conditions which prevailed in Desplaines river valley for year 1910.

Q. Wil you total those and see if that gives you an average precipitation for the five stations of 26.18 inches?

Objection; figures in record.

A. That would make average rainfall for year 1910, 26.18, and average deficiency 8.43.

Q. That would make a mean precipitation, would it not, of about 34 inches?

Objection; two of the stations not shown in computation.

5613 A. 34.6 inches.

Q. I show you a precipitation record at Chicago from 1843 to 1910, inclusive. Assuming that it is properly certified and authenticated. I ask you if it does not show a non-official record from 1843 to 1870, and the official record of the United States from 1871 to 1910, a mean precipitation from 1843 to 1870 of 34.66, and from 1871 to 1910 of 33.52?

Objection; figures limited to precipitation at Chicago, it not appearing that Chicago precipitation and that for Desplaines would be the same.

5614 A. Yes; have not checked it carefully, but average precipitation for 68 years of about 33.99 looks all right. Table shows precipitation for 1867, 22.40; 1890, 32.69; 1891, 26.54; 1892, 36.56; 1893, 27.47; 1894, 27.46; 1895, 32.38; 1896, 33.14; 1897, 25.85; 1898, 33.77; 1899, 26.49.

Q. Assuming drainage area of 1,026 miles at mouth of Jackson's Creek, you computed average flow of Desplaines water shed at 610 cubic feet per second. How would 5615 that be increased at the mouth of the river or at Morris, Illinois?

Objection; incompetent, irrelevant and immaterial; because of rapid run-off and wide variation in flow, and so forth.

5616 I give it to you at mouth because I got that before I go other. Based on ratio furnished by counsel, namely,

area to and including Jackson's Creek, 1,026 square miles, total water shed, 1,358. Flow at mouth would be one-third greater, or about 810 cubic feet per second. According to data used in my computation, area of Desplaines to the mouth is not 1,392 square miles, but 1,358. The area I gave on my water shed map which was based on Government estimates. It is not to my knowledge the custom among engineers to assume depth of 11 inches, on all river basins lying east of Mississippi river. My reason for assuming 8
5617 inches was that it was 25 per cent. of 32. Based on their relative areas above mouth of Desplaines and area you gave as area down to and including Jackson's Creek, there is an average difference of about 200 second feet between the mouth of Jackson's Creek and mouth of Desplaines.

Q. If fall on water shed was 34 inches and average run-offs 11 inches, you would have in neighborhood of about 800 second feet at mouth of Jackson's Creek, and about a thousand second feet at mouth of river, would you not?

Objection; incompetent, irrelevant and immaterial; evidence shows floods run off quickly; river condition subject to frequent and rapid changes, etc.

5618 A. Refuse to be drawn into any discussion on that hypothesis because I think there is no basis for it.

Motion to strike out.

5619 Having been advised by counsel for defendant that am under no obligation to answer question, I decline to answer.

Q. If you had made this computation and found an average run-off at mouth of Jackson's Creek of 800 cubic feet per second, what would you say as to interpretation you have put on Seddon profile as showing low water in 1883 of 800 second feet at mouth of Jackson's Creek, when you consider that in 1883, in addition to drainage area, considerable quantity of water was emptied into Desplaines from Lake Michigan through Illinois-Michigan Canal?

Objection; incompetent, irrelevant and immaterial; calls for conclusion on something witness did not do, etc.

5620 A conclusion drawn from averages of that sort have absolutely no value. Have no reason to doubt accuracy of results shown by discharge curves and flow line because entire flow of eight inches usually runs off in three or four months, leaving very little for remaining eight or nine months.

Seddon profile seems to show that in his opinion, he did not think contribution from Jackson's Creek was sufficient to justify making change at that point. Can't say whether Seddon made allowance for contribution from DuPage river. Probably, in his opinion 800 cubic feet per second for flow below DuPage river and for convenience he extended that value up stream to be safe in computing for waterway or construction works that might be placed. Seddon profile shows line interpreted to be 800 second feet as extending up to Joliet.

Seems to show he took that as low water flow of Des-
5621 plaines river. Don't think there is an increase of about 50 per cent. in water shed below Hickory Creek and mouth of river, than at mouth of Hickory Creek. Think area Hickory Creek water shed about 130 square miles.
5622 Which, subtracted from 924, leaves in the neighborhood of 800 square miles, or more than 50 per cent. of entire water shed of Desplaines Valley. As to low water discharge of 800 second feet on Seddon's profile, which extends uniformly from Hickory Creek down through Valley of Desplaines to mouth, would not interpret it as not giving credit to additions from tributaries in that 50 per cent. of water shed, but that he found that to be the flow near the mouth, and, to avoid further refinement, concluded he would call it 800 all the way up and play safe. When you consider the purpose he had in mind, it would not be as fair to interpret the 800 second feet as above mouth of Hickory Creek as at Jackson's Creek. He was designing structures and preparing estimates for a water way so he would have everything large and ample enough if he took the larger vaue. It is my hypothesis that he took 800 second feet as an outside figure. Don't know what Seddon had in mind. Have consulted Wisner survey of 1883. My attention is directed to Marshall's map which covers Treat's Island and is labeled Sheet No. 13, and entitled "Map of Treat's Island and Vicinity, surveyed in accordance with an Act of Congress August 11, 1888, under the direction of Captain W. L. Marshall, Corps of Engineers, U. S. A., by L. L. Wheeler, U. S. Assistant Engineer, 1888-1889." The first soundings appearing at Treat's Island, showing a maximum depth of 3.2 could not be utilized by a boat. It is close to sort of bay at extreme point of island. Soundings for the line are 2.2; 3 feet, 3.2 feet; 2 feet; 1.6 feet; 1.7 feet; 2 feet; 2 feet; and 1.6 feet. On opposite side of river from that line of

soundings, down on left hand side of Treat's Island is shown a maximum depth in two places of 2.5 feet and in next
5625 line of soundings a maximum depth of 2.31, and in next line, a maximum depth of 3.2, which is on opposite side from deepest point in this line, which means that between lines of soundings would not have maximum depths you read in each line. This would become evident if you drew contours for river bed, same as you draw for ground surface. Currents do not change from one side to the other in river bed in such a place and for such a short distance. In such a long concave bend, current hugs concave bank. Does not go from concave convex side. Second line of soundings from head of Treat's Island is as follows: 1.9; 2; 1.6; 2.5; 2.5; 1.5.

Next line of soundings is 1.1; 1.3; 1.2; 2.3; 1.5; 1.6.
5626 Next line is 1.6; 3.2; 1.9; 1.5. Near enough to say that from first line of soundings to 4th line would be about 900 feet, or soundings 300 feet apart. As Seddon had nothing to do with lower Illinois, I see no basis for statement that the scale of his profile was made for the flat slopes which exist on lower Illinois. It is usually customary to exaggerate a vertical scale where the slopes are very slight.

5628 Whereupon the examination of the witness was suspended and counsel for defendant offered in evidence volume of the Chicago Daily News, October-December, 1888, from Chicago Public Library files, Morning News for Tuesday, December 11, 1888, page 2, editorial headed, "The Rights of the Valley."

(Reading):

> "Our drainage contemporary occasionally experiences a semi-lucid interval. It has admitted that 300,000 cubic feet a minute is required in a drainage channel for proper dilution—for what time in the future and for what population is not stated. It now admits that the valley towns have the right to an abatement of the nuisance, though no right to exclude the sewage from the valley, and that Chicago should provide 'a channel broad and rapid and six to eight feet in depth.'
>
> If our contemporary will employ a little elementary hydraulics it will find that 'a channel broad and rapid' to carry 300,000 cubic feet will cost considerably more than one deep and narrow for twice that volume. So far as oxidation is concerned, the large dilution will be

more effective than any breadth which it is feasible to give. The deep channel has been advocated by this journal on account of its economy in cost and on account of the small variation in flow due to high water and to
5629 its being covered with ice in winter.

Our contemporary falls back on our 'vested right' to turn sewage into the valley, providing we do not create a nuisance. It of course admits that such privileges as we have by joint resolution of the legislature can be suspended by the same authority.

No town has any right to impair the utility of a stream, and in that respect we stand on the same footing as the towns in the valley. But we own no riparian rights at points where we can discharge into the stream, and, if we did, any such point, if beyond our jurisdiction, could only be reached through legislative authority. What privileges we obtain are simply by legislative enactment, and can be coupled with such requirements as the legislature chooses to lay down. This is the plain long and short of it, and the river people have been clear upon the subject ever since the agitation started.

So far as water power is concerned, the Supreme Court holds that control ceases when the flow is turned into a public stream.

The whole question is simply one of comity, an attempt at bulldozing the people with whom we must treat accomplishes no wise purpose."

5630 Objection; incompetent, irrelevant and immaterial; unsigned editorial, author unknown, and no reason being given for the introduction of this newspaper writing in place of testimony on which the government would have the right of cross-examination.

COUNSEL FOR DEFENDANT. I offer from volume headed "Chicago Daily News, January to June, 1889," issue of February 15, 1889, page 1:

(Reading):

"Mayor Paige is heard. He Attacks the Drainage Bill—Riley and Roche Answer him in the House—Amendments Agreed to—Victory for Merritt's Anti-Trust Bill—Two Nominations made.

Special to the Chicago Daily News. Springfield, Ill. Feb. 14. The drainage and canal question got a much better presentation before the legislature today than

it did yesterday. Mayor Roche was feeling in fine spirits and made an admirable speech on the question before the House Committee of the whole."

Now I omit and continue reading further on (reading):

"A resolution endorsing the bill had been adopted by the Marseilles business men's association was introduced and then Mayor Paige of Joliet, presented his objections to the measure. He held that the bill gave the trustees of Sanitary District power over Joliet docks, and he objected to such power. He desired also some
5631 other method of computing the dilution of sewage. The work to be done under the bill would end three or four miles from Joliet, and the water would there spread out into a great stagnant marsh to the detriment of health, he claimed."

I omit then again (reading):

"Mr. Riley, of Joliet, briefly explained the situation at Joliet, showing that the call for the public meeting there in favor of the bill, was signed by representative citizens, and that there was a large attendance of this class of persons, who almost unanimously adopted the resolution in support of the measure."

Then I omit, and quoting now from Mr. Riley's speech, I read (reading):

"Among other things Mr. Riley said: 'Now, gentlemen, right in the face of this call for Tuesday's meeting, this man (Mayor Paige) has seen fit to come down here with a delegation and give utterance to views that his own delegation is not in favor of. All that he has in mind is the utter abatement of the sewage coming down the valley at all. I am not here to favorably agitate the Chicago sewage question, because I am not in favor of the sewage coming down our valley if it could be prevented. However, it appears it cannot be, and that being the case, I will say that if this scheme is carried out under the intent of the bill, it will not create greater injury to Joliet than now, but virtually be a benefit.
5632 That is what I think. Without Chicago's pumps now we would have to shut down every factory in Joliet, and we would have to shut down Norton's water power. Now, is this increased water power that this bill will create in the interest of our town or in the interest of Chicago? I think it is to our interest as well as to Chicago's, and that it is to the interest of the state at large.

Now, gentlemen, if there are any safeguards that you can throw out in the interests of the people of the valley, for God's sake do it, because they need it. If there is anything that we have omitted and that ought to be in this bill to protect us, it is something that has been overlooked by the Chicago representatives as well as by the rest of us, and I hope you gentlemen will put it in."

Now going on after remarks by Mayor Roche (reading):

"Proposed Amendments. Mayor Roche and Mayor Paige had an animated discussion in the House, which was a private conference and an interchange of views. At night there was a meeting of Mayor Roche, Mr. Medill, Mr. Cooley, Mr. Riley, Mr. Mooney, Mr. Ewing and others, when the advisability of amending the bill was considered. The point at issue was that the ship canal should go to Lake Joliet, and that the trustees should not have any right to dockage outside of Cook
5633 County. Joliet receded from this position and gave Chicago privileges of dockage, and water power so far as the canal proper is constructed. Subsequently an agreement was reached and the amendments will be presented tomorrow. But it is presumed he will not longer antagonize the wishes of the Will County representatives."

Whereupon a specific objection was made to this particular discharge on the ground that it attempts to represent the result of a conference, of which conference there are living witnesses today who can be brought into court to testify.

Woermann Cross-Examination Continued.

As to whether or not it is more difficult for the ordinary person to understand a profile of a river which has a natural declivity when that declivity is shown as in the Sanitary District case on an exaggerated scale, would say I cannot see that it would be, if it was not exaggerated it would be of almost no value. It is customary to exaggerate the vertical
5634 scale whether the slope is flat or steep. The Seddon profile is exaggerated more than is actually necessary to show the declivities between Joliet and the mouth of the river; possibly at the rapids, but I think the profile is very well prepared on the whole and is in harmony with what is usually done. I said on direct examination that Mr. Cooley's profile began at Joliet while mine was extended to Lockport.

As to whether this is not a criticism in regard to accuracy but is just a difference in regard to territory covered and not in regard to the accuracy will say I think I so stated on my direct examination, I don't remember without referring to my testimony.

Whereupon the record was read as follows (p. 2568, Abst., 1060):

"What effect upon the appearance of the slopes, so far as the visualizing of the effect of the slope is concerned has the changing of the scale by Mr. Cooley?

A. Mr. Cooley's profile makes the slope look flatter than the original from which mine was traced. Permit me to supplement my answer?

Q. Yes.

A. There is also this difference; Mr. Cooley's profile begins at Joliet while mine has been extended up to Lockport. That is not a criticism in regard to accuracy, however, just a difference in the territory cov-

5635 ered."

Then this question:

"Q. That is, you have taken more of the original then he has, is that right?"

And you answered:

"Yes, sir."

A. That answer is wrong in so far as it would apply to Mr. Seddon's profile, because Mr. Seddon's profile does not go above Joliet, and Mr. Cooley's profile stops at Joliet. In order to continue my profile above Joliet I had to adopt another profile.

As to what was my motive in extending my profile up to Lockport while the Seddon profile only extended to Joliet, would say because during the trial of the State case the Economy Light and Power Company requested that a

5636 profile be drawn from Lockport to the mouth. Although this particular Seddon profile does not extend to Lockport, yet the profile which was published with his report does extend to Lockport. I did not use the Seddon profile from Joliet up to Lockport but I used the Marshall survey. My purpose in using the survey of 1883 as far as Joliet and the survey 1889 by Marshall from Joliet to Lockport when I had a survey by Mr. Seddon for that territory was that Mr. Seddon's profile from Joliet to Lockport followed the line of the Illinois and Michigan Canal and what I was platting and wished to show was the profile of the river.

Q. On page 2572 (Abst., 1061) of the record Mr. Woermann I asked you to give me the official title of the profile of the United States Engineer's office of which your Seddon profile was a tracing. You stated you could not recall the way in which it was labeled and I thereupon asked you if you
5637 could furnish that to me at a later date. Are you prepared to do so now?

A. The title or label on that profile was essentially the same in substance as the one which we all looked at in the United States Engineer's office at the time of my direct examination, but the particular one, as you remember, the men in the office were unable to find at that particular time and I have not been there since. The one which we saw in the United States Engineer's office did not have any title upon it except a title in pencil which was read into the record at that time.

Q. There was nothing to show that that title was put on there by Mr. Sedden or anybody under his direction? There was nothing to show that that title which we there found was anything more than a memorandum put on there by some member of the office force of the United States Engineer's office, is that correct?

A. I do not think there is any reasonable grounds for such a statement Mr. Cressy. As I stated at that time that was one of a number of papers which constituted the rec-
5638 ords of the 1899-1900 survey, which at the time of my survey were still all contained in one box, and for the reason that Mr. Seddon's connection with the government was terminated very abruptly, things were not finished up as they really should have been; but because some titles or notes were left in pencil and were not finished up in good style I think it is no reasonable ground for questioning their accuracy or standing.

Mr. CRESSY. I move to strike out the answer as not responsive to the question, and I will ask to have the question read again.

(Previous question read.)

A. It is not customary for the assistant engineer in charge of a survey of that kind to sign the maps or profiles or hydrographs and such things.

It is not customary for the engineer under whose direction the survey is made to sign it. I don't think you will find a single—I know you won't find one of the 58 maps which were

prepared under my direction that has my signature on it; nor one of the profiles or any of the plans of locks and dams. It simply states in the title, those that were finished up, that they were prepared under my direction; and on those that were not finished that does not even appear.

Q. Do not those maps and profiles, for example, those you have just referred to, bear title, and it is not a fact that the Seddon profile that you have called attention to does not bear any such title; is not that correct?

5639 A. You were speaking about signing a moment ago, when I made that reply; about their being signed.

Q. Just answer my question.

A. I am trying to answer them to the best of my ability.

Q. Read the question Mr. Satterlee.

(Question read.)

Mr. SCOTT. It is objected to on the ground that it has already been answered specifically; and is further objected to because it is two questions in one, each independent of the other.

Mr. CRESSY. You may answer.

It did not bear any title in ink, it was labeled in pencil sufficiently to show what it was. As to whether I would say that the marks in pencil which I saw on the profile in the United States Engineer's office would be denominated a title, would say I see no reason why it should not so be called. As to whether the pencil memorandum was on the back of

5640 the profile and not on the face would say yes; the pencil memorandum might be called a title. A title, when a drawing is finished up properly and inked in, as for example, in the maps accompanying the Captain Marshall reports, and in the maps and profile accompanying the 14-ft. waterway report and all other reports is put on the front of a drawing. I understand navigation on the Sanitary District channel at the present time extends to Dam No. 1 by means of drainage channel, old drainage channel to Lockport and new channel recently constructed between that point and Dam No. 1.

Q. What bearing has the slope of the Desplaines river from Joliet to Lockport, shown on profile you have submitted, upon question of constructing a navigable waterway by using Sanitary District channel and Desplaines river?

5641 Objection; incompetent, irrelevant and immaterial; not cross-examination.

A. None that I think of at present time.

Q. If we constructed waterway for navigation between Chicago and Morris, we would use Sanitary District channel to Dam No. 1, and Desplaines river from Dam No. 1 to Morris, would we not?

Objection; same as foregoing.

A. For general purposes, would say yes. Would not use river over Joliet rapids. As for balance of way, would build lateral canal about three miles above those rapids, then enter river below Brandon's Bridge and use Desplaines for balance of distance. When I stated on direct that distance
of rapids at Treat's Island was 1.1 miles, referred to
5642 my profile based on Seddon profile. Measured distance
along left-hand channel, going down stream. Otherwise known as south or east channel. I used point half mile immediately above mouth of Desplaines in measuring rapids as one-half mile. One point would be substantially mouth of Desplaines; other one-half mile above. On transcript page 2575 (Abst., 1062) said there was a fall of about three and a half feet in about one-half mile, which, as stated, is half mile
immediately above mouth in distances from Dam No. 1
5643 from a point 80,700 to a point 83,300, which gives a difference of 2600 feet and fall of 3.7 feet between these points.

Q. You state on your direct examination that in computing the reading of 13.1 upon the gauge at Riverside you used the figures of Mr. T. T. Johnson, an expert witness in the State case. Was there not in existence a discharge curve in the possession of the Sanitary District which was regularly in use by the Sanitary District? On record page 2583 (Abst., 1065), a question was asked you by Mr. Scott as follows: "Now, Mr. Woermann, starting with the flow of 800 feet per second between Dam No. 1 and the mouth of the river, how do you arrive at the depth of 1.7 feet flowing over the bar at Riverside, for a gauge reading of 13.1 at that point? A. According to the table of discharges introduced by Mr.
T. T. Johnson in the State case, this corresponds to a
5644 reading of 13.1 feet at Riverside."

A. I presume there was in existence a discharge curve, I did not use this discharge curve of the Sanitary District for two reasons. In the first place I do not have a copy of that table; in the second place in an issue in which the Economy Light and Power Company was concerned I would be very suspicious about using any table that was furnished

by the Sanitary District. I happen to know something of the feeling that exists—

Motion to strike out the answer.

A. (Continuing.) Between the officials of the Sani-
5645 tary District and the Economy Light and Power Company. Furthermore I doubt whether the Sanitary District of Chicago would furnish me with a table if I asked
5646 them for it. I do not know whether it is a fact that the Sanitary District had established this curve a great many years prior to the state lawsuit against the Economy Light and Power Company being instituted, and in fact for ten years had regularly made use of this discharge curve. Mr. T. T. Johnson was an expert witness on behalf of the Economy Light and Power Company, but the table which he used was presented to Western Society of Engineers about 1896, while he was working for the Sanitary District. I arrived at figure that there would be less than fifteen inches between Romeo and Lake Joliet when there is a reading of 13.1 at Riverside with a volume 550 second feet from my familiarity with profile of Desplaines, knowing depth is at least that much less on
5647 rapids than at other points. Width at Riverside about 150 feet. Width in rapids between Romeo and Lake Joliet very variable. Have seen it number of times. Slope at that point very variable. Total fall 77 feet in about 11 miles between Romeo and head of Lake Joliet. Never made any cross-section of stream at any point to determine whether there would be depth of fifteen inches or more, but Seddon profile, which I adopted, and which is subject of this discussion shows less than 15 inches on Joliet rapids; and that slopes between Lake Joliet and Lockport were steeper than anything below Lake Joliet. Therefore, plain inference is that depth there would be less.

5648 As to whether my answer to this question would depend somewhat upon the width of the stream, would say, yes, I took that into account. As to whether I took into account that the profile I am now referring to shows a volume in the neighborhood of 800 second feet from the rapids at Joliet, and we are now referring to other points where there was not that amount of water flowing, would say I am assuming that the river was in a state of nature, and basing my answer on the relative slopes and widths as I know them from personal knowledge. Assuming flow of 550 feet at Riverside, you would have considerable increase of flow at mouth after had flow from DuPage and other tribu-

tary streams emptying into Desplaines in addition to 550 feet. Would be no material increase between Joliet rapids and those above pool created by Dam No. 1. In my computa-
tion at transcript page 2583 (Abst., 1065), where I said,
5649 "In a manner similar to that by which I arrived at the
depth at Riverside which corresponded to the 1867 profile, by proposition; taking the watershed above Riverside at 633 square miles and the entire watershed above the mouth of Hickory creek at 924 square miles, the equation is," etc., I assumed the river in state of nature for the purposes of that computation, though, of course, Illinois-Michigan Canal did empty into river in 1883 and 1867. Eliminated that and got
back to natural state. I criticised Cooley's tables be-
5650 cause they included certain dates between December 1
and April 1. I prepared a table which eliminated all those dates. In my table it shows there was a deficiency of depth in the river. In 1886, included month of December,
showing 31 days no discharge. Included December in
5651 1887. In 1889 included months of January, March and
December. In 1890, month of December. In a word, for all those years, entire year was considered. If you are investigating water power question in figuring stage of water in given river, it is customary to figure all days in year, but in question of navigation would say no. Think it fair statement that complete report on streams should give stages and discharges for entire year, but that is apart from discussion as to what is available for navigation season. In case of
largest streams, though not as to smaller, it is cus-
5652 tomary for engineers to record the number of dates
corresponding to stages of water and assume that navigator who consults such tables understands well that stages are not consecutive and may be broken. If you say that MacKenzie, in 1887, report of the Comstock Board in which a table of the Upper Mississippi river set out the stages of water in substantially same form as set out in Cooley's table for Desplaines, am willing to accept your statement.

Q. You are not familiar with this table, so as to know that the Comstock Board drew their conclusions from this table in regard to the proper depth for the Hennepin Canal in view of its relation to the Upper Mississippi river?

Objection; incompetent, irrelevant and immaterial; not cross-examination.

Whereupon counsel for the government stated that the
5653 witness had testified that he was long connected with the Hennepin Canal.

The WITNESS. The report was published in the chief engineer's report for 1887. The report was by the Comstock Board and the particular table compiled by Colonel afterwards General, MacKenzie, in conjunction with that report of the Comstock Board on the Illinois river. I have read most of the report, if not all of it, but do not recall just what it says. Do not think it is a fair statement that on the Ohio river stages are commercially utilized whenever they occur, whether short, long, consecutive or otherwise, because at beginning of winter movable dams are lowered and remain so through winter with exception one below the harbor at Pittsburg, which is maintained to allow for local navigation in Ohio river. There are 11 movable dams on Ohio river; 11
5654 more under construction. Total number will be thirty-nine. They are not built continuously, but at intervals. Improvement extends in measure for whole length of river. They won't secure 9-foot depth at low water until entire system completed. Think first improvements put in Ohio were to procure four foot depth and that in former times, water was so low that sometimes for four months coal fleet was held in Ohio at Pittsburg waiting for rise of water to get down river. Last year on Upper Mississippi above Des Moines rapids for six months through packets between St. Louis and St. Paul were tied up because of low water. Boats did run locally
5655 between Rock Island, Burlington, etc. In order to be useful for purposes of commerce, it is practically necessary that river should be navigable for consecutive period of considerable length. The case of the Upper Mississippi last year illustrates that point.

A bar formed just above the mouth of the Missouri at
5656 what is known as Maple Island in the early part of July, as I remember it, or just before July, the latter part of June, perhaps, which stopped navigation between St. Louis, and St. Paul. The St. Louis office immediately sent up one of the large hydraulic dredges and made one cut through that bar, but on account of the type of dredge, she had great difficulty in getting back through the cut because the hull was wider than the cut which she made, due to the fact that the material did not flow in, and it was several weeks before a dredge of the dipper type could be brought down from the Upper Mississippi for the purpose of enlarging that channel.

After that time there was no more difficulty on that point, and as far as I know, and I keep in very close touch with the matter because I read the reports for the upper Mississippi every month as they go through my hands—yet as a matter of fact the confidence of the steamboat owners was so shaken by that experience at the beginning of summer, that they did not resume the running of packets between St. Louis and St. Paul.

Boats plying between Burlington and Davenport may have been tied up for a time because of the low water in the Mississippi beginning late in the summer and extending all through the fall. I do not recall whether they were or not.

5657 Q. The purpose of improving a river, Mr. Woerman, like the Mississippi and Ohio and Desplaines would be to make these irregular periods consecutive when there would be navigation upon them.

Objected to because it assumes that there were any periods in the Desplaines of navigation to be improved.

Q. That was the purpose on the Ohio and Mississippi, was it not, Mr. Woerman?

A. That was one of the purposes.

In the report of Post and Paul and Bucklin, and others, between the years 1824 and 1837, I find that the Desplaines river was measured at Laughton's ford and found to have a discharge of 60,000 cubic feet per hour, and the minimum discharge at Cache Island of 117,000 cubic feet per hour, which appears on page 135 of the Canal Commissioners report of 1900.

5658 I do not recall at the present time in these reports any statement that the Desplaines river during that period, 1824 to 1837, ever ran dry. I cannot say that I am familiar with that report.

As to whether these minimum volumes, as shown by the Post and Paul report, and the Bucklin report, are greater than the volume which we now find in the Desplaines river at these points in dry years, would say, I would like to say that while these were the actual measurements that were taken by this survey party at certain times—and this answer is really an answer to the previous question,—I am uncertain as to whether any statement may occur in the report as to there being a less discharge at some other time when the party was not actually making the measurements. And so, at the present time, if it was not for the fact that we have daily discharge readings at Riverside during this period of years, and had to rely entirely on what we find in reports, likely as not we would accept

Mr. Harman's measurements as to the minimum volume. My impression is that if we had gauge readings for this period
referred to by Post and Paul, that they would not be dis-
5659 similar to those of the latter period. Remember Bucklin's statement on page 135 of Canal Commissioner's Report, "It may be proper to remark here that the fall of 1830 was a season of extraordinary drought." These investigations of 1824, 1830 and 1837 I think were made to determine minimum flow in Desplaines, DuPage, Calumet and other rivers, to determine feasibility of feeding Illinois-Michigan Canal with their waters. Yet those years and months might not have been times when the minimum discharges occurred. August, September and October are months in which lowest water usually occurs. Report, page 135, says with reference to one of these measurements that it was made in season of extreme drought.

You asked me my authority for stating that one of
5660 the measurements was about four cubic feet per second. I found that was given by Cooley in Leveritt's Water Resources of Illinois, 17th Annual Report of the United States Geological Survey, part 2, 1895, page 741. Copy I made reads as follows (reading):

> "Professor Cooley reports that at Riverside in 1887, it reached a minimum of 4.27 feet per second; and for five months did not exceed 16-2/3 cubic feet per second. He estimates that for nearly every year the extreme low water flow at Riverside and Joliet reaches about 5 cubic feet per second."

5661 Those words read are verbatim from Leveritt's Water Resources of Illinois.

I have not that report here, I really do not know whether we had it here the other day. I copied this from the copy I have at home. Whereupon it was agreed between counsel that the matter might go in subject to objection unless he could produce the report.

Counsel for the defendant then agreed if he could not
5662 produce it now to produce it on the trial. Whereupon counsel for the government asked leave to further cross-examine the witness when the book in question was produced.

My answer to the question asked at transcript page 5649 "Assume the volume that you assumed at Riverside, at 550 cubic feet per second, what would be the corresponding volume at the mouth of Hickory creek, at the mouth of the river, and at Romeo" is as follows: The area of the watershed to Lock-

port is 774 square miles, corresponding discharge, 672 cubic feet per second. Area down to head of Lake Joliet
5663 including Hickory creek is 924 square miles, discharge 800 second feet. It is same as gave on direct. Total watershed area is 1358 square miles, corresponding discharge 1180 cubic feet per second. In connection with discussion why Seddon showed 800 second feet flow line at mouth the same as at head of Lake Joliet, is perhaps that at that time condition was as I saw it in fall of 1907; that is, there was no water coming out of DuPage, which constitutes practically entire additional area coming in between these points, and that, for that reason, he just took 800 second feet straight through. Would say that flow of DuPage river had flow that was at least in proportion to rest of watershed. Am not prepared to say it was better sustained,
5664 though may have been somewhat better sustained. I am not familiar in detail with the conditions in a state of nature of Jackson's creek and Rock Run, for that reason when you asked me about them the other day I was unable to say I had ever seen them dry because I had not been around them enough during the fall and summer months to know from personal knowledge. In former discussion about Canal Commissioner's Report of 1900, page 135, counsel for defendant directed my attention to passage at page 147 thereof, the same being an extract from a report made December 13, 1838, some eight years after report to which counsel for complainant directed my attention. In the latter passage was a reference as follows:

"The past dry season rendered the measuring of the Desplaines almost unnecessary, since for nearly four months the tightest dam that could be erected would not, at the point for taking out a feeder, have saved water
5665 enough to propel a single pair of ordinary millstones."

Do not know how much water it takes to feed a pair of millstones. I read (reading):

"Repeated gaugings from the 20th of July to the 22nd of August, and it was afterwards still lower, gave an average of less than the measurement of 1830."

Q. Assume for the purpose of this question the gauging of 1830 approximately represents the lowest water of Desplaines in state of nature, how did that compare proportionately to lowest water we now find in Desplaines from reading of gauge at Riverside?

Objection; assumption; contrary to record.

A. The gauging of 1830 was 60,000 cubic feet per hour, 1,000 cubic feet per minute. According to your assumption, low water flow would be lower at present time than it
5666 was then. How much is a relative question. 16-2/3 cubic feet per second is so close to nothing could hardly say it was great deal lower. Table introduced showing lower water than 16-2/3 feet per second was your 1830 measurement. Gauge records show there was no flow for many days. 16-2/3 feet per second is so nearly nothing could not say it was great deal lower, though if you take it by proportion, ratio is 16 to zero, an infinite ratio. 11.4 on gauge would represent elevation corresponding to lip of pool, but many gauge readings are lower than that. There are many days under present gauge readings when water is even lower
5667 than lip of pool. Have not recently read engineer's reports on lower Illinois river. I remember the statement in one of them that there was a considerably low water period in which water on bars was less than 16 or 20 inches.

Q. Is it contended in any reports on lower Illinois or testimony in this case that river was consecutively navigable through these low water periods?

Objection; based on wrong assumption of witness' knowledge of all testimony and reports in case.

5668 Whereupon it was pointed out by counsel for the government that the assumption simply refers to reports on the Illinois river.

COUNSEL FOR THE DEFENDANT. But the question also refers to all the testimony in this case. Whereupon the question was amended to meet counsel's objection.

A. I think not, that is for boats such as are used in these days. Whether very shallow draft boats ran consecutively or not, I am not prepared to say.

As to whether I am familiar with river navigation sufficiently so that I know that there are a great number of boats operating on a draft of from two to four feet of water, boats of considerable size and burden, would say, yes, sir; that is the usual draft on western rivers, 3½ to 4½ feet. As to whether there was a number of large boats with a draft of less than 3½, would say that I don't know of any that are loaded. I do not think there are any large steamers that draw less than 2½ feet light, some of the smaller ones, lighter ones, may draw only 2 feet. The lower water period on the lower Illinois has been known to be as long as 150 days. Messrs. Wilson and

Gooding in their report of 1887, stated that the usual
5669 low water period was from 60 to 90 days.

Q. Is it not a fact, Mr. Woerman, that streams which are now navigated by boats have had such periods of low water, the extent of such periods depending in a measure upon the improvements that have been made in those streams?

Objected to as incompetent, irrelevant, immaterial and because the word "such" does not sufficiently indicate the condition to which the question is directed, or on which the contention is based.

COUNSEL FOR GOVERNMENT. In order to meet the objection of counsel will say, "Such rivers as the Ohio, the Mississippi and the lower Illinois." As I have mentioned, for example, you testified that you knew periods of 150 days upon the lower Illinois, and I think you testified yesterday that you knew of similar periods upon the Ohio and Mississippi.

A. Low water is entirely or wholly a relative term and does not indicate depth, and it is true that all alluvial streams have periods of high water and of low water.

5670 Q. And in a great many of them during those periods of low water, navigation is actually interrupted until improvements have been made in the streams, so as to remedy this low water; is not that correct?

A. That is true but not to any such extent as was shown to be the case in the Desplaines river.

(Motion to strike out the latter part of the answer as not responsive to any question.)

COUNSEL FOR GOVERNMENT. In view of the fact that on direct examination of this witness, at 2658 and 2659 (Abst., 1088), Mr. Scott puts the following question: "Now, Mr. Woerman, from your knowledge and investigation of the Desplaines river, and your experience in connection with waterways, are you able to state whether or not the Desplaines river is navigable for the purpose of useful commerce"; I at that point interposed the objection on the ground that no proper foundation had been laid for asking this witness this question. I desire now to add to that objection the following objection; the question is further objected to on the ground that the question involves a question of law for the court as to which the opinions of witnesses are not competent; and further in view of the fact that it is impossible to get any ruling of the court upon this objection at this time, I desire without

waiving that objection, to ask the following question.

5671 Mr. Scott. All right.

Mr. Cressy. Q. Mr. Woerman, is it your contention that by reason of the fact that navigation is interrupted in rivers by periods of low water, such rivers are not therefore navigable streams?

A. As I stated a few moments ago, all of the western rivers have periods of low water as compared with an average or flood flow; and I am also willing to admit that useful commerce may be entirely interrupted for two or three months in the fall, September, October and November; and if the stream was navigable during the months of April, May, June, July and August, I would not say that it was not navigable, because it was interrupted for three months in the late summer or early fall.

But if it was interrupted say in May and then maybe you had enough water for a part of June, and then none in July and August, for example, or not enough for commerce, I would not consider that a navigable stream; particularly where the periods of navigation, as you might call them, were at irregular times. I contend that in order to be of any value it must have some regularity.

As to whether it is a fact, that on some of the streams, these periods when navigation is interrupted, do occur at irregular intervals, and not at regular intervals, would

5672 say that is true in a general way but I know of no stream which is considered navigable which as a matter of fact is not navigated during the months of April, May, June and July. The gauge records show that that is not true of the Desplaines river. It is a fact that even on those streams where I said you have navigation during April, May, June and July, that in some years navigation is interrupted, even in those months, by low water, but that is the exception and not the rule. I would add that as to my statements there, while I said western rivers, I wish to limit it also to western rivers in this latitude. I do not recall making any statement that the extreme low water reported in connection with the so-called profile of 1867 is a proper measure of the availability of this stream for navigation. I think what I did say or meant to say was that the profile of 1867 represented the usual low water flow in a state of nature.

5673 As to whether it represents the extreme low water flow, would say, no, I would not say extreme low water,

although I would say that it was less than the ordinary low water. As to whether it is a fact that in making profiles and measurements such as was done in 1867, the purpose of such profiles and such measurements is to indicate when the stream is not capable of being used by boats and for the purpose of determining what improvements are required to render the stream usable under the extreme conditions of low water, will say, there again, I would not say extreme low water, but the ordinary low water; and by way of illustration I call attention to the fact that in the acts of Congress appropriating money for the improvement of rivers where depths are specified, there is always a clause in the act which states that the depths given are the depths at ordinary low water; not extreme low water. By the ordinary low water as distinguished from extreme low water, I mean the low water which obtained in an average year in the river. I am not familiar with the Trinity river in Texas.

I never found any bench marks that were left by
5674 the survey of 1867 that I say was made. As to whether I know any soundings were actually made in that survey from anything that appears in the records,—referring now merely to the question of soundings—would reply as I stated the other day I have never seen the note books of that survey. They were probably misplaced on account of the changing of the office perhaps, from Davenport to Chicago. And I am therefore unable to state from personal knowledge of the records of that survey.

5675 As to whether I am able to say whether or not Palfrey and Griffin did anything more in that survey than to level up the canal bench marks and check the profile made by Preston in 1857, and whether or not the soundings made on that profile of 1867 are not in fact identical with those reported on the Preston survey, would reply to that a question that I would like to read several extracts from the report of General Wilson, and of Assistant Engineer Worrall upon that survey, as given in the report of the Chief of Engineers for 1868.

COUNSEL FOR GOVERNMENT. I would like to have the question answered and then if you care to read any extracts in support of that answer that would be admissible in order to avoid redirect examination.

A. I do think that they did much more than that and in support of that opinion, I would like to read these extracts, that is what I had in mind.

Whereupon the witness proceeded to read from page 438 of that report as follows:

"Having been designated by direction of the Secretary of War, through engineer orders dated Washington, May 8, 1867, as a board 'to conduct surveys and examinations, and to prepare plans and estimates for a
5676 system of navigation by way of the Illinois river, between the Mississippi and Lake Michigan, adapted to military naval and commercial purposes in accordance with the act of March 2, 1867,' we have the honor to submit the following report."

Then at the bottom of that same page, are the following words (reading):

"Accordingly, at as early a date as the season would permit, we organized, under the general authority heretofore cited, three surveying parties, under the immediate supervision of Civil Engineer Assistant James Worrall, for the purposes of making a thorough and exhaustive examination of the entire region lying between the southern and western end of Lake Michigan and La Salle on the Illinois river, and also for the purpose of conducting a low water survey of the river from La Salle to its mouth. To the first of those parties, under Civil Engineer Assistant Engineer George Butler Griffin, and afterwards under Civil Engineer Assistant H. Alppers, was assigned the duty of surveying the line of the canal from Chicago to La Salle, the Des Plaines, and the Illinois rivers, and all the alternate lines which had at any time been spoken of, including that of the Mud Lake."

Then the first few lines from the paragraph at the bottom of page 439:

"By a careful examination of the report and profiles, of this year's survey, with the map herewith submitted, it will be seen that the location of the present canal from Bridgeport to the Valley of the Des Plaines, cannot be advantageously or economically changed;"

Page 459, the second, third and fourth paragraphs of Assistant Engineer Worrall's report, read as follows:

"On the 19th of June last, I placed a party of engineers on the south branch of the Chicago river at Bridgeport, a suburb of Chicago, which party continued in the field until late in November, having entered the valley of the river Des Plaines at a point seven miles

from the place of beginning, and followed the valley of that river, and the Illinois river to the foot of Grand Island, in the last mentioned stream."

5677 Grand Island is fifty miles or more below Peoria. (Reading):

"On about July 1st I placed another party in the field, which, having carefully examined the head of Lake Michigan, and the waters and water-sheds surrounding it on the southwest, traversed instrumentally the valley of the Kankakee from Momence to its junction with the Illinois, and surveyed, as high up as

5678 Aurora, the valley of the Fox river, a tributary of the Illinois, finished their labors by a careful survey of the valley of the Illinois from the foot of Grand Island, before mentioned, to the river Mississippi.

The country embraced in this survey has been examined before by various authorities, but so large an amount of information has never been heretofore obtained under one surveillance."

On page 461, the second paragraph reads as follows (reading):

"The surveys made by us around the southwestern branch of Lake Michigan settled the question, that through the 'Sag' or the Lemont narrows was the only passage towards the west for Lake Michigan waters flowing by gravity; and this being once settled the remainder of the location of this work becomes inevitable, and must follow the valley of the Des Plaines to its mouth, and thence the valley of the Illinois to the river Mississippi."

On page 466, the second paragraph reads as follows (reading):

"The Calumet feeder was sounded with iron rods from its outlet to the dam at Blue Island. A regular survey was made from Blue Island to Momence, on the Kankakee, and from Momence to the Junction of the Kankakee and the Des Plaines, where the Illinois river is formed. A reconnoissance was made of the upper Kankakee, from Momence, in a northerly direction

5679 along the river into the State of Indiana, say about 30 miles, among the Kankakee marshes, where boats had to be used, there being no foot-holding for the instruments."

Seems to me these excerpts show conclusively General

Wilson and assistants went into subject thoroughly. Spared no pains to get necessary data. If they took no soundings in Desplaines, were certainly convinced that elevations furnished by Preston, if they were so furnished, as has been suggested, were as good as they could secure, in which event immaterial whether elevations of the river bottom were determined by Worrall's party or Preston's.

Counsel for complainant offer in evidence certified 5680 copy of record of annual precipitation at Chicago from 1843 to 1910 inclusive, heretofore referred to in this cross-examination. Whereupon, said document so offered in evidence was marked "Government Exhibit 1 of July 8, 1911."

Whereupon said document so offered in evidence was marked Government Exhibit I, July 8, 1911, and is in words and figures as follows:

GOVERNMENT EXHIBIT I OF JULY 8, 1911.

N. S.

Annual Precipitation at Chicago.
1843 to 1910 inclusive.
Record furnished by Prof. Henry J. Cox,
U. S. Weather Bureau.

Unofficial.		U. S. Official.	
1843—	35.50	1871—	35.61
1844—	33.12	1872—	29.07
1845—	32.30	1873—	36.41
1846—	40.00	1874—	28.63
1847—	32.80	1875—	38.06
1848—	44.40	1876—	36.48
1849—	34.20	1877—	41.01
1850—	30.40	1878—	41.95
1851—	38.60	1879—	30.71
1852—	38.80	1880—	37.32
1853—	36.40	1881—	44.18
1854—	24.60	1882—	41.34
1855—	36.30	1883—	45.86
1856—	29.04	1884—	34.61
1857—	39.83	1885—	44.37
1858—	47.10	1886—	26.77
1859—	29.30	1887—	29.13
1860—	36.40	1888—	30.86
1861—	39.30	1889—	34.95
1862—	40.42	1890—	32.69

Unofficial.	
1863—	33.60
1864—	28.40
1865—	40.20
1866—	36.30
1867—	22.41
1868—	36.48
1869—	31.57
1870—	22.92
Mn's.—	34.66

U. S. Official.	
1891—	26.54
1892—	36.56
1893—	27.47
1894—	27.46
1895—	32.38
1896—	33.14
1897—	25.85
1898—	33.77
1899—	26.49
1900—	28.65
1901—	24.52
1902—	37.57
1903—	28.09
1904—	26.14
1905—	35.36
1906—	30.87
1907—	35.10
1908—	34.83
1909—	43.22
1910—	26.86
Mn's.—	33.52

Average Precipitation for 68 years, 1843 to 1910—33.99.

I hereby certify that the record of annual precipitation in Chicago as shown by the attached sheet to be a true copy taken from the records of the United States Weather Bureau.

(Signed) JOHN H. ARMINGTON,
Local Forecaster,
U. S. Weather Bureau.

Subscribed and sworn to before me this 8th day of June, A. D. 1911.

(Signed) LULU M. RIDER,
Notary Public in and for Cook County, Illinois.

(Lulu M. Rider)
(Cook County, Ill.)
(Notary Public)

Q. Mr. Woerman, are you able to ascertain from that 5680 report the amount of money which Mr. Wilson had on hand for the purpose of sending these parties into the field? And in that connection a further question as to whether that amount would have been sufficient to have justified this

extensive work which you stated you had assumed had been done?

COUNSEL FOR DEFENDANT. I object, the witness has not stated that he assumed the extensive work was done, but has read from the report a description of the work that was done.

A. I am unable to find any statement of the cost of the survey or of the appropriation in connection with the report.

Mr. CRESSY. The accuracy, Mr. Woermann, of the work as determined by the later profiles that have been made of the Desplaines river, does not correspond, does it, with the statement in the report as to the work that was done? In other words, if this report had been done with the accuracy that you assume, the discovery would have been made that Lake DuPage did not have a fall of two feet as the profile states, for one thing.

Mr. SCOTT. I object to fixing the accuracy upon the assumption of the witness, whereas, as I stated in the former objection, the witness has read from the report itself.

Mr. CRESSY. I am not asking him to comment upon the report; the report speaks for itself.

5681 A. I think that that report like all other historical works you might say, must be considered in the light of the times; and I admit, as I did the other day, that the degree of accuracy was not as great on that survey as it was on the later ones.

As to the matter of a fall of two feet being shown in Lake DuPage, I am not certain, as I stated the other day, whether that might not be due to some condition there, which was there at that time and which disappeared later; although it is more likely, as I stated the other day, that that is a mistake of the draughtsman in drawing in the line, the man who platted it. I have seen a mistake like that made a number of times in my own office. A man takes a level book and plats a series of points; then he connects them up and he overlooks one point, just as you can see in this case, he may have had a point platted a little further down stream, which really represented the head of Lake DuPage and which he overlooked when he drew in that water line.

As to whether there is anything in that plat to justify any such assumption in the case of Lake DuPage, would say the plat of which we saw the tracing, of course, it was not platted in the tracing, if that is what you mean. The point

might have been overlooked in the platting. As to
5682 whether this survey of 1867 was what is known as an explorative survey, would say I have never heard or seen any such title applied to it. As to whether it is a survey such as usually made for a final project, such as being in a system of locks and dams in the river, would say he used it for that very purpose. I have just now referred to the fact that he ran several other lines for the purpose of determining, and that he finally asserts in the very extract which I read that he came to the conclusion that the Desplaines was the most feasible route of the various routes.

Referring to page 2652 (Abst., 1086) of my examination I was asked where Mr. Dugan found, as he testified in his examination, the greatest depth as being 19.6 feet, and I testified that this depth of 19.6 feet was found on three different soundings. Then I was asked to give the greatest depth found on the next section upstream, and I testified 16.1, and so on until finally I gave a cross-section, the sounding readings as follows: 3.3, 4.0, 4.1, 6.2, 8.1, 8.4, 7.5 and so on.

5683 As to whether or not it is a fact that that point where those soundings were made is the point where Lake Joliet obtains its greatest width, would say that the width along that line of soundings is 1650 feet, and the width of the lake at right angles to the shore line is 1400 feet. It is relatively, in reference to the other widths of Lake Joliet,
5684 in the widest portion of the lake. I testified that the velocities referred to in my report of 1905 referred to the condition as it would exist after the improvements contemplated by that report were made.

As to whether there is anything in the report itself to indicate that, will say nothing perhaps except that it naturally follows that an investigation of that kind would be made to determine what the conditions would be in the proposed waterway, because it was not navigated in a state of nature; or its present state.

COUNSEL FOR GOVERNMENT. I move to strike that out as not responsive to the question. I had reference to the report, and I object to voluntary statements on the record.

The WITNESS (continuing): As to whether as a matter of fact in that report I used the extreme high water line as it existed in the condition that I examined it, would say I used the greatest flood that was recorded for each of these
5685 points. The greatest flood gave the high water line shown on that profit. If I were computing it for a

changed condition I might, or I might not have shown the high water line in the changed condition; not necessarily.

Q. Do you not state in your report that there was not sufficient data to enable you to compute the velocities at the mouth of the river and at Treat's Island?

Objected to; if he does so state it will appear in the report.

COUNSEL FOR THE GOVERNMENT. I am trying to state the report here. I think that is permissible.

A. I think I do; I do not remember the exact words.

I also make the statement that the velocity will not exceed a certain limit, which occurs at page 41. These two localities to which my attention has just been called, namely the point at the mouth of the river, and at Treat's Island, are what is known as the ruling localities below the head of Lake Joliet.

5686 As to whether it would be fair to assume that in making the statement that the velocities as computed by me referred to the improved conditions; that this statement does not apply to that portion of the river between Dam No. 1 and the head of Lake Joliet; in all other portions of the river it refers to the velocities as they exist at the present time, or as they existed in 1902 or 1905, would reply that I am not prepared to say; I was about to supplement that previous answer by saying that the details of those computations which were made seven years ago are not sufficiently fresh in my mind to enable me to go into detail. In the section of the river between Dam No. 1 and the head of Lake Joliet, I projected a canal, I deepened the river from Dam No. 1 to McDonough street, although I was not to occupy it for the purposes of navigation, so as to carry not only the natural flow but the 10,000 cubic feet per second which the Sanitary District of Chicago proposd to send down without endangering the City of Joliet. As to

5687 whether or not it is a fact that I proposed to occupy a portion of the river bed with this canal and therefore diminish the width of the river as it existed prior to 1902 and 1905 and that to compensate for the lessening of the width, I deepened the river, will say that is exactly what I stated day before yesterday. I planned this so as not to change the flow line from what it was found to exist in a state of nature in its present stage. It would follow that having made a channel both narrower and deeper with the same flood line that the velocity would be thereby increased.

Q. So that the velocity in a state prior to the proposed improvement as to the rapids between Dam No. 1 and the head of Lake Joliet would be less than the amount given in that table, which is seven miles an hour, I think. I will withdraw the seven miles per hour, whatever the table says to be the velocity, the actual velocity which existed would have been less than the amount shown in the table.

A. That was 7.4. I think your statement is true in a measure. I do not think that difference, however, would be very large.

5688 In computing velocities at the points below the head of Lake Joliet, I testified that I used the largest flood on record at each point.

Whereupon counsel for defendant offered in evidence, as previously requested by counsel for complainant, from House Documents, Volume 12, No. 5, report of Secretary of Interior, Volume 4, part 2, Geological Survey, 1896, excerpt from article on Water Recourses of Illinois by Leveritt, at page 741 (reading):

5689 "The drainage area above Riverside is scarcely 1,000 square miles. This gives at the maximum extreme flood of April, 1881, a flow of fully 13.5 second feet per square mile of area. The low water volume is exceedingly small. Professor Cooley reports that at Riverside in 1887, it reached a minimum of 4.27 feet per second, and for five months did not exceed 16-2/3 cubic feet per second. He estimates that for nearly every year the extreme low water at Riverside and Joliet reaches about 5 cubic feet per second."

Then occurs note 3, and the reference is to "The Illinois river in its Relation to Sanitary Engineering, L. E. Cooley, C. E.," page 74.

Then I continue to read:

"The main tributary of the Des Plaines, the DuPage river, as noted by Professor Cooley, drains a more gravelly tract than the DesPlaines, and receives water from springs so that it sustains a larger low water flow than the upper Des Plaines, but its extreme low water flow is still very small; it is estimated by Professor Cooley to not exceed a mean of 50 feet per second in a period of 20 years, and possibly reaches as low as 17 to 20 feet per second in some years. The greater percentage of range of the Des Plaines."

COUNSEL FOR DEFENDANT. That is where the quotation ends. There is given there note 3, which is the same reference to page 74 of the Illinois river and its Relations, and so forth.

5691 On the opening of court at one o'clock, July 8, 1911, the witness, J. W. Woermann, made the following statement:

Mr. Cressy, referring to this table of maximum velocities about which you were asking me this morning, as I stated then, those computations were made about seven years ago and the matter is not fresh in my mind. It is possible that I am mistaken about some of the statements I have made in reference to that. It occurred to me while I was at lunch, and I was going to ask you if I might look up my notes with reference to that, and communicate with you in a letter or through Mr. Scott—or Mr. Scott is going away—

Mr. SCOTT. My office will be here. What do you mean, that after you have examined your notes and—

The WITNESS. And I find, for example, that those are the velocities as the river now is instead of as I have stated, that those are the velocities which occurred after the construction works are in.

5692 Mr. SCOTT. If you have any questions about what I think it is desirable that you look it up and either by letter, if Mr. Cressy will agree to that, or in some other method, the record will be made to conform to the facts.

The WITNESS. I spoke of a letter because I was under the impression that today wound up the testimony, and I thought perhaps that was the only way left to do it.

Mr. CRESSY. The only point is this, if you are going to testify further we might want to cross-examine. It would depend on what your answer was.

Mr. SCOTT. I suggest that you look it up and write us a letter and we will communicate to you, Mr. Cressy, that letter. Then if you want to examine him further you will have the opportunity to do so.

Mr. CRESSY. I am perfectly willing to let the record stand as it now stands. I have cross-examined Mr. Woermann at considerable length on this very point.

The WITNESS. It is because of some of the points you have drawn out, that I am somewhat doubtful about my statement.

Mr. SCOTT. Mr. Woermann, there is no question about the

right of a witness at any time if he sees he has made a mistake, to correct his testimony. Any witness who has given a deposition may do that, and it is open to you to make any investigations you please and report the results of them and you will have an opportunity to do that.

5693 The WITNESS. I shall do that as soon as I can.

Mr. CRESSY. I have no objection, only I want to have the right to cross-examine further if desired.

Mr. SCOTT. Yes, of course.

The WITNESS. (continuing): At transcript page 2628 (Abst., 1079) I testified it was not possible to produce an open river navigation from Desplaines river of a depth of 4½ feet with the volume of water that has prevailed in that stream since the opening of the drainage canal in January, 1901. At transcript page 2630 remarked that all government reports recognize only way to secure navigable channel at these points is by lateral canal or by slack water navigation. No project prior to my report of 1915 considered a supply of water from Lake Michigan, other than

5694 that necessary for lockage purposes. Earlier reports considered depth as low as 4 or 4½ feet; one estimate for six foot depth. Law governing 1905 project, except as to stretch between La Salle and Ottawa, where they were allowed to consider less depth, limited Board to consideration of fourteen foot depth. It was not on account of the fourteen foot requirement that I used lateral canals at Joliet, and Marseilles. I used locks and dams all way down river, dividing it into levels except at those two places. Lateral canals were required there because of excessive currents. Provided that dams in river would be down in time of flood. I doubt very much that that would make open river navigation. Think there would be no

5695 navigation. With respect to boats of high speed, velocities would not be prohibitive, except at Joliet rapids and Marseilles even in time of flood.

Q. Do you wish to be understood as saying that it is impossible to produce navigable depth of 4½ feet by means of open channel, and the volume of water that has prevailed since January, 1900, through Desplaines river between Dam No. 1 and mouth by means of improvements?

Objection; incompetent, irrelevant and immaterial; not cross-examination.

5696 At transcript 1502 and 1503 (Abst., 638), question you asked Mr. Cooley was based actually on flow of 5,000

second feet. If question to me limited to that basis, will say no. Flow since drainage canal opened very irregular. I am satisfied it has been much larger than that a good deal of time, although not so officially reported. Assuming 5,000 feet it is not possible. Have examined profile along thalweg of stream and slopes at various points where they occur in stretch between Dam No. 1 and mouth of river.

Q. Is there anything mysterious about lowering of river bed and effect of such lowering on pools above, that has not been considered and well understood by expert engineers ever since the river improvement was undertaken by the United States?

Objection; incompetent, irrelevant and immaterial.

5697 A. Results show that it was not understood.

Given the volume of water, the outline of stream bed, elevation of water at various slopes and other points along stream and widths, it is not possible to satisfactorily calculate the effect that cutting through the slopes will produce on upper level. For example, Sanitary District computed channel to carry 10,000 cubic feet per second. They got one that carries 14,000. Channel was practically uniform in width and depth. When taking one irregular in curvature and depth and slopes, and with various kinds of obstructions on bottom, your uncertainties and difficulties are multiplied many times. I have seen it stated in reports and have had it stated to me verbally that it was the intention of Sanitary District to de-

5698 sign channel for 10,000 cubic feet per second. That statement is contained in paper Sherman, Assistant Engineer in charge of Calumet channel, recently on Evanston Ditch, read before Illinois Society of Engineers. Had talk with him on subject afterwards.

As to whether I know the gentleman who actually computed the channel for the Sanitary District prior to its construction, would say I presume Mr. Cooley had charge of it.

As to whether Mr. Sherman did not have anything to do with that, would say I really don't know. Lake Joliet is at head of Treats' Island. Would not say rapids at mouth of

5699 river and at Treat's Island are just below very long and deep pools. Long is a relative term. I would not say they were very long. Lake Joliet about five miles long; Lake DuPage about three. Know approximately depth of these pools. Assume you lowered Lake Joliet a few inches, you would lengthen Joliet rapids. Lengthening depending on how much you lowered it. Do not know what Cooley's pro-

ject is for securing 4½ feet. Same thing true of lower rapids at mouth. If you lower Lake DuPage you lower rapids at Smith's bridge, which lowers pool above mouth of Jackson's Creek, which again lengthens rapids, at Treat's Island so you have endless chain.

Q. How does the lowering of the pool of Lake DuPage lower the pool just below Treat's Island?

5700 (Objected to.)

COUNSEL FOR GOVERNMENT. You specifically stated that you lengthen the rapids at Smith's Bridge. How does the lengthening of the rapids at Smith's bridge lower the pool above Smith's bridge? That is specifically what he did say.

COUNSEL FOR THE DEFENDANT. He said that the lowering of Lake DuPage would lengthen the rapids at Smith's bridge.

COUNSEL FOR GOVERNMENT. And he said that in turn would lower the pool above Smith's bridge. You are in error there are you not?

A. That is my off hand judgment about it. Rapids are affected by the pool that is below them. They are lengthened; if you lower a pool below the rapid, you lengthen the rapid.

As to whether that determines the amount of water flowing over the rapids, or the depth of the rapids, it has its effect, which is to increase the velocity and lower the water surface. As to whether it is a fact that whatever you may do to a pool below the rapids will have no effect upon

5701 the amount of water which flows through that rapids, would say it certainly will have no effect upon the amount of water.

Q. If it has no effect upon the amount of water and nothing is done in the rapids itself to affect the declivity, what effect will result on the pool above merely by work lower down the stream?

A. But you started out with the proposition of deepening these rapids. The whole scheme is based on that statement.

Q. But just answer my question; you attempted to throw in here a volunteer statement to the effect that you would have an endless chain, and I picked you up on that statement in which you endeavor to show an endless chain.

A. Yes, sir.

Q. And you said that the lowering of the level of Lake DuPage would lengthen the rapids at Smith's bridge and that in turn would lower the level of the pool at Jackson's Creek,

And I am now endeavoring to point out to you the particular points in the chain to see if you are not in error, on the assumption that there was no change proposed on the rapids.

5702 A. Well, but I will take into account your first proposition that you did propose to change the rapids.

Q. Suppose we leave that out; suppose no change was made upon the rapids at Smith's bridge; would the lowering of Lake DuPage have any effect upon the pool at Jackson's Creek?

A. I think it would. As I stated a moment ago, your rapids would be lengthened at the bottom, but just like coming down a long hill with an auto or a wagon; the more stretch you have got there the more impetus you gain, and the greater your velocity the less your depth.

As to whether that would tend to show that you would take less water at the top of the lake than you did previously, if you have a less depth at the top or lip of the pool above, will say if you eliminate the deepening of the rapids I presume that is correct. But I was unable to follow, or at least did not follow, your variations of deepening the rapids one moment and not deepening them in the next question.

Q. If you improve the rapids at Smith's Bridge, then you might lower the level of the pool at Jackson's creek; that is correct, is it not?

5703 A. Mr. Cressy, if you will allow me, I think we may save a lot of time here.

Q. Well, just answer my question.

A. It does not matter how long you may cross-examine me on this proposition of getting 4 feet and a half in the Desplaines river; with these slopes and that volume you are not going to change my position on that point. I have worked on projects for open river improvements too long.

Mr. CRESSY. I move to strike all this out.

A. I have studied too many reports and estimates on that subject to be influenced by any cross-examination that you may make along theoretical lines on this subject.

Mr. CRESSY. I move to strike out this volunteered statement on the part of the witness as showing an element of hostility on his part as to affording counsel for the government a chance to examine into the basis of his statements made upon direct examination. We are now dealing, Mr. Woerman, with a theoretical problem.

A. Decidedly so.

Q. It is a problem which engineers have had to consider in times past in reference to the Ohio river and in reference to the Mississippi river, and all of our great river systems; is not that correct?

A. And you cannot point—

Q. Just answer my question.

A. No, sir; not with those slopes, nor can you point one out.

5704 As to whether the rapids on the Snake river where counsel says the rapids are even greater there than on the Desplaines have been improved by the government, will say no I am not sufficiently familiar with the Snake river to say what they have done there.

As to whether it has been done on the Missouri river and on the Columbia river, for example, on the Missouri river between Fort Benton and Carroll, particularly at Cows' Island rapids, and Sister Island rapids, would say I do not think there are any such slopes below Fort Benton; and above Fort Benton as far as I know there is no navigation. That is, there was none in a state of nature; there may have been with these big dams that have been built in the last fifteen years. There wasn't any there at the time of the survey I was engaged on. I found slopes on those rapids between 4 and

5705 8 feet to the mile and steeper, but we had to use a rope to let our quarter boat down. That was above Fort Benton. Did not survey below Fort Benton. Recently read reports submitting a plan for improving that stretch of river known as "Rocky" portion, giving depths, slopes, etc. Recall no such slopes on that portion of it. Average slope on Missouri is about .8 of a foot per mile below rocky portion. More than that on rocky portion, but to best of my knowledge, nothing like Desplaines slopes. There may be short stretches above or below Fort Benton on Missouri where there is four feet to mile. I do not think there are any where there is as much as eight feet to the mile. Do not know that slopes

5706 from 8 to 12 feet per mile have been improved and are navigated on Snake river. Am not familiar with that. I know this, that Snake river volume is very large as compared with that of Desplaines. They are not in same class. Snake river's ordinary flow much larger than 5,000 second feet. Possibly at times it gets that low. As to whether it is a question of degree as to the amount of wing dams and other engineering works that you put into a river, as to whether or not it is possible to improve that river to a depth of 4½ feet

given a volume of 5,000 feet or more, will say, now you are interjecting into the question the subject of wing dams, an element about which Cooley said nothing. Would admit that if you have unlimited funds and can lengthen river sufficiently to spread out fall uniformly, or nearly so, over whole length and make it narrow enough, you can secure 4½ feet.

5707 Is it not possible, Mr. Woermann, on a slope between four and eight feet to the mile, to produce a channel four and a half feet deep, by contracting works and smoothing out the bottom of the channel?

A. I would say in the first place that the slopes which you continue to talk about, four to eight feet, are not the maximum slopes on the Desplaines river.

Mr. CRESSY. I move to strike out as not having anything to do with the question before you.

Mr. SCOTT. Go ahead with your answer.

Mr. CRESSY. The question is purely a theoretical question. It is not necessary to make any remarks of that sort.

Mr. SCOTT. Proceed with your answer.

A. Read the question again, Mr. Satterlee.

(Question read.)

Mr. SCOTT. That is objected to on the ground that it is now assuming a state not of nature but of improvement by dams, wing dams or otherwise; and is incompetent, immaterial and irrelevant.

5708 COUNSEL FOR GOVERNMENT. What I meant by contracting work is what they call regulating work.

A. Those are wing dams.

COUNSEL FOR DEFENDANT. It is further objected to on the ground that it does not involve the necessary elements, and does not assume any particular flow of the river.

COUNSEL FOR GOVERNMENT. Assume a flow of 5,000 feet for the purpose of answering this particular question.

A. Theoretically, according to Kutter's formula, you could, but it has been found when you actually come to carry out improvements based on Kutter's formula in natural stream, actual results are not according to theoretical results. That is matter of degree. Kutter's formula is probably used more than any other. As to whether slopes which are steeper than 4 to 8 feet to the mile consist of very short stretches or knobs, would say the stretches that are steeper than 8 feet to

5709 mile; there is Joliet rapids, over three miles long. When you applied 3 miles to Lake DuPage you called it long. According to 1883 profile fall from Dam No. 1 to

head of Lake Joliet, assuming Dam No. 2 and Adam's Dam are removed, would be about 22 feet in three miles. Less than 8 feet to mile for whole stretch. Slope on my profile at that point 22 feet in same distance. That is the low water of 1901.

Whereupon, at request of complainant's counsel, witness read from the report entitled "Report of Mr. George Y. Wisner, Chicago, February 23, 1884," appearing in the
5710 pamphlet entitled "Letter from the Secretary of War transmitting in obedience to the law reports of surveys of the Illinois, La Salle and Sangamon rivers, which also appears at page 960 of report of the chief of engineers for the year 1883 (reading):

"Water gauges were established at ten different points between Joliet and La Salle and careful readings made of the height of water surface for each day during the period occupied in making survey. The zeros of these gauges were connected with each other by the line of levels, and also with all the high and low water marks to be found along the valley.

The profile of the river bed was determined by sounding cross-sections about 500 feet apart, except in the deep water pools, throughout the entire distance.

"These soundings were all reduced to the depth corresponding to extreme low water, by subtracting the height of the water surface above the low water slope,
5711 as determined by the gauge readings on the date of sounding."

Referring to House Document 263, Report on Fourteen Foot Waterway, I have gauge readings at Morris for certain years. In 1887 have reading of low water of 486.53, Memphis datum. There is no gauge reading; can compute it. For 1893 it would be 486.22. The elevation of the gauge was changed between those two periods. In 1897 get a read-
5712 ing for 9 weeks of 486.55. Referring to my profile in 1905, the reading of low water in 1883 at Morris is 486.7, Memphis datum.

Whereupon counsel for complainant read a quotation from "Lakes to Gulf Waterway," by L. E. Cooley, 1890, page 49 (reading):

"Mr. Claypool's record begins in 1834 and has been continued to date by noting well defined elevations which have since been referred to low water. This low water has been carefully assigned as three-tenths feet above low water of 1887 by record of the Drainage Commission,

which was within two or three inches of the lowest since the bridge was built in 1856."

5713 Morris is about 10 miles below mouth of Desplaines, The readings referred to are lowest that occur on the gauge at Morris, as shown by me in my report of 1905. Gauge records were all prior to opening of drainage canal. Think Seddon's low water line of 800 feet based primarily on gauge at mouth of Jackson's creek.

5714 To indicate that, he plats that gauge not only on profile he prepared for United States but on one prepared for Sanitary District. He shows that gauge right on flow line. That might be called an interference. Referring to Cooley Exhibit 3, I base my statement that low water line on that profile is probably derived from Seddon because, under word "authority" he says that the flow lines are from diagrams prepared by Seddon for Sanitary District of Chicago in 1901, 1902. I read whole paragraph under title "Au-

5715 thorities" (reading):

"At the bottom and low water line from survey of 1883 as reported by Captain W. L. Marshall, in 1889. The data have been compared with that of the U. S. surveys of 1899-1900, and of 1902-1904, and reduced to the final precise levels of the last survey. The level lines are from diagrams prepared by James A. Seddon for the Sanitary District of Chicago in 1901-1902. Then following a wide blue line, the sentence "characteristic low water stage since opening of sanitary canal on January 17, 1900."

As to whether that authority shows that the discrepancies I have discovered in comparing Mr. Cooley's profile with my copy of Seddon's profile are due to the fact that Mr. Cooley corrected his map to comply with the various surveys that had been made from 1883 to date, would say I was not basing any statement in regard to Mr. Cooley's profile on a comparison simply with Mr. Seddon's. I went back to the original soundings as given in the report of Captain Marshall.

Q. Does not Mr. Cooley on his profile there state that that is the low water of 1883 and that it is not Mr. Seddon's flow line of 800 feet?

Mr. Scott. Objected to because what he states has just been read into the record.

5716 A. So far as I have been able to determine from a comparison of these profiles which you referred to, namely, the one accompanying the Marshall report and the one

prepared by Mr. Seddon, and the one prepared by Mr. Cooley and the one prepared under my direction, they are all practically the same. That is, the elevations of the pools are the same. Of course on the rapids is where they differ. I did attempt to check up Mr. Cooley's profile with the special survey of Captain Marshall, of Treat's Island. I made a tabulation one day showing what the elevations of the pools were on these different profiles, and that is the conclusion I came to.

As to whether Captain Marshall's elevations have been corrected, with the latest surveys so that they would differ from what appears in the map of 1890, and as to whether the elevations are slightly different when corrected up with the latest surveys, would say if when you say Captain Marshall's elevations have been corrected, you mean Mr. Cooley states that he corrected them on his profile;

I took that into account. As to whether Mr.
5717 Cooley does not use Mr. Seddon's low water line,

would say I think the elevations of the pools are substantially the same, barring slight differences that might come in

the platting. I have not made a careful study of the
5718 hydraulic conditions that prevailed in the flood of 1892.

As to whether I have made a study of the conditions that prevailed over the portage swamp region, would say I have endeavored to find some data on that subject but was unsuccessful. I saw what Mr. Cooley gave in the direct but I did not consider that complete enough to base any careful computations on. As to whether I made any careful study so that I would wish to take issue with Mr. Cooley on the correctness of his findings, namely, the conclusions made by Mr. Parry on Parry Exhibit 2, referred to on direct examination, showing what the depth was over the divide in a state of nature, in speaking about the hydraulic conditions as they were in 1892, would say that the hydraulic conditions were quite different in 1892 from what they were in a state of nature. Just what the conditions were, I do not think anybody knows. I can say there was a difference because I know that locality well enough to know there was a great deal of difference. As to whether Mr. Parry in the flood line which he attempted to

indicate showed what he called a probable flood line as
5719 it would have existed in a state of nature, would say he

showed what he called a probable flood line. It is a fact, that you can navigate the Desplaines down stream in a skiff from Dam No. 1 to the mouth of the river. As a matter of fact I have twice done it, down stream. As to whether it is a

fact that a great many other people besides myself have done the same thing, if they have I have not heard of it. It is possible for them to have done it. Dam No. 1 was placed there by consent of state authorities and Illinois-Michigan Canal Commissioners.

Q. Do you know as to the volume of water that is allowed the Sanitary District by Federal permission?

Objection; statute is best authority.

A. Yes, sir. Sanitary District was obliged by its
5720 charter to turn into Sanitary District channel under state law 20,000 cubic feet per minute for each 100,000 population in Sanitary District. At present time amounts to something over 400,000 cubic feet per minute. District is permitted to use 250,000 cubic feet per minute, or 4,166-2/3 feet per second provided current does not exceed one and a quarter miles an hour in Chicago river. Permit based partly on fact that Chicago is so narrow that greater current is dangerous and partly on fact that amount of water from Lake Michigan should be limited as to quantity. Low water line of 1901 does not take into account flow of 4,166-2/3 feet. Quan-
5721 tity at that time not so much. Think it fluctuated between 175,000 and 225,000 cubic feet per minute. Low water line of 1901 corresponds to something like flow of 3,300 cubic feet per second at Jackson's creek. Said low water profile of 1901 would not be proper profile to show low water of Desplaines for last eleven years. Have stated flow has been considerably in excess of 5,000 cubic feet at times. Upon request of counsel for the government I read from Inland Waterways Commission, page 35 (reading):

> "The accompanying table is a summary of the tables which follow on the navigable streams of the United States. The streams included are those which have been the objects of government improvement and are now in active use more or less directly under the corps of engineers of the United States Army, together with streams forming parts of state systems of public works. The mileage can only be considered as approximate, since complete official records are not available. Sections of rivers that might be rendered navigable are not included, nor streams that are practically abandoned for navigation purposes. No rivers, tributary to the Great Lakes have been included."

Believe stated Illinois river between Ottawa and La Salle was navigable. Actually navigated year or two ago. If there

was canal along Marseilles rapids, it is probably correct that boats could go to mouth of Desplaines in low water with same facility that they reached La Salle before improvement of lower Illinois, with increased flow from Sanitary District. Could probably navigate that part of river as easily as lower part of Illinois in its natural condition. By navigable stream
I mean one which was or could be used for purpose of
5724 carrying on useful commerce in way in which it is usually carried on. As to what depth of water would consider necessary for navigation, supposing I had width, slope and other conditions sufficient to justify it, think no general answer can be given to that. As to what would be a minimum depth on which useful commerce could be carried on would say
that a river that had less than foot of water in it would
5725 not be a navigable stream today. If other conditions were favorable river having more than a foot of water could be navigated for purposes of useful commerce. Not absolutely necessary that river should be absolutely free from snags and boulders. If the river had fall in it which is absolutely impossible to navigate, but had stretches above and below with sufficient water, whether or not would consider that a non-navigable river because of that fall would depend upon proportion of unnavigable falls or rapids as compared with portions navigable. A stream might have a fall in it and if it had sufficient stretches of navigable water above and below that fall, it might still be considered a navigable river according to my definition. The fact that a river was a connecting link between two large systems of navigable water would have bearing on question as to whether a small stream having sufficient volume at certain times of year to operate boats on was navigable stream or not would depend on length
of the certain river. Recall no official documents de-
5726 scribing Desplaines between Dam No. 1 and mouth as a non-navigable river, nor do I recall any which calls it a navigable river. Some eight or ten reports have been rendered on Desplaines, as to what is necessary to improve it, though I think word "improve" not used in the connection, in those reports, that you refer to. For instance, my own report says:

> "The Act of Congress states that the Secretary of War shall appoint a Board of Engineers to make surveys, examinations, investigations and so forth, to determine the feasibility of and to prepare a report, plans

and estimates of cost of a navigable waterway, 14 feet in depth from Lockport, Illinois to St. Louis, Missouri."

COUNSEL FOR COMPLAINANT. I read into evidence from report of Wright, appearing in report of the Canal Commissioners of 1900, page 174 (reading):

"The Desplaines was not in a proper situation to gauge, as there had been copious rains; I therefore take the former measurements of the United States engineers, as stated in the reports of the canal committee, at 54,800 cubic feet per hour."

This particular report is dated October 23, 1837. Reading now from page 175 of the same report, and in this connection I will say that if we do not read sufficient you can ask us to read additional portions (reading):

"If we admit that an ample supply can be obtained from this source, we ought, before adopting the plan, to look at the consequences of taking the water of Fox river, and what would be the effect of throwing so much water into the bed of the Desplaines. Would it not prevent the several large tracts of low (very low) prairie land from being drained and brought under cultivation? If I have been correctly informed, this would be the effect, and this is of very great moment, not only in preventing this land from being cultivated, but endangering the health of the people in the surrounding country."

I also read from page 180 of Canal Commissioners' Report of Wright, dated October 25, 1837, the following (reading):

"The value of the water power at Lockport will be in
5728 demand as soon as the water is in the canal, and to prevent breaking the bank to take out water, I would advise that a water cement wall be built, with the stone excavated from the canal founded on the rock, and carried up with a batter of one inch to the foot; and at every 60 or 80 or 100 feet I would insert a cast iron frame of various sizes, say some of 24 inches square, 20, 18, 12 or any other size I suppose would be required, and these being placed at two feet or more above the bottom of the canal, and masonry extended between 10 and 20 feet as you please, and a gate fitted to each. I should do the same thing at Juliet, where, if I have not mistaken the information obtained, the State holds control of all the water power on the river. This will permit you to sell water power at any point and in such quantities as may be wanted, and the purchaser has nothing to do but

erect his building and introduce his water, and you will sell the water by the inch as is customary."

5729 COUNSEL FOR COMPLAINANT. We offer in evidence this table as to duration of ice at Chicago, Illinois, table No. 21, at page 207 of report of U. S. Deep Waterways Commission, Washington, Government Printing Office, 1897.

Objection; incompetent, irrelevant and immaterial.

(Paper so offered and identified, is in words and figures following, to wit):

No. 21—Chicago, Ill.

(41 degrees 53 minutes latitude north. Altitude, feet. 87 degrees and 37 minutes longitude west.)

	Year.	Opened.	Closed.
	1847	.....	Open
	1848	Open	Nov. 27
	1849	May 12	Dec. 22
	1850	.....	.....
	1851	.....	.....
5730	1852	.....	Open
	1853	Open	.....
	1854	.....	.....
	1855	.....	Dec. 6
	1856	Mar. 20	Dec. 1
	1857	Feb. 18	.....
	1858	.....	Feb. 15
	1858	Mar. 15	Open
	1859	Open	Dec. 20
	1860	Feb. 26	Dec. 3
	1861	Mar. 1	.....
	1862	.....	Dec. 2
	1863	Feb. 1	.....
	1864	Feb. 8	.....
	1865	Mar. 17	.....
	1866	.....	.....
	1867	.....	Dec. 26
	1868	Mar. 4	Nov. 20
	1869	Jan. 10) Mar. 22)	Feb. 8
	1870	.....	Dec. 1
	1872	.....	Dec. 18
	1872	Mar. 18)	Dec. 9

	Year.	Opened.	Closed.
5731	1873	(Mar. 9)	Dec. 1
	1874	Jan. 10	Nov. 20
	1875	Apr. 20	Open
	1876	Open	Nov. 26
	1877	Mar. 20	Open
	1878	Open	Dec. 1
	1879	(Feb. 1)	Open
	1880	Open	Nov. 14
	1881	April 2	Open
	1882	Open	(Nov. 30)
	1883	Feb. 13	(Dec. 19)
	1884	Feb. 16	(Dec. 12)
	1885	Feb. 17	(Jan. 15 (Dec. 24
	1886	Mar. 21	Dec. 1
	1887 }	Feb. 9	.....
	1888 }	.....	Feb. 8
	1888	Feb. 18	Open
	1889	Open	Open
	1890	Open	(Open)
	1891 }	(Open)	.....
	1892 }	.....	Jan. 9
	1892	(Jan. 27)	Dec. 26
5732	1893 }	(Feb. 28)	.....
	1894 }	.....	Feb. 12
	1894	Mar. 3	Dec. 27
	1895 }	Feb. 24	.....
	1896 }	.....	Jan. 4
	1896	Mar. 1	.....

5732 Average date of opening, February 27; average date of closing, January 7; average number of days closed, 51.

Authorities: Mr. Ossian Guthrie, Mr. John S. Sargent, Messrs. Piper & Co.

Note.—Compared with Seneca, Illinois, for interpolation for twenty years' period. The above dates are for ice closing on streams in the near vicinity of Chicago."

5733 Mr. CRESSY. So that we may have no misunderstanding about it, Mr. Scott, I would like to ask Mr. Cooley a question about this. Have you any objection.

Mr. SCOTT. No.

(Witness temporarily withdrawn.)

LYMAN E. COOLEY, witness for Government, resumed stand and further testified as follows:

Direct Examination by Mr. Cressy.

Q. Mr. Cooley, look at this table which I now show you and state if this table was prepared under your direction as a member of this United States Deep Waterways Commission?

A. It was.

Q. To what does the table given on page 207, labeled No. 21, Chicago, Illinois, refer to, as to the duration of ice on what?

A. Streams in the vicinity of Chicago.

Whereupon the witness J. W. WOERMANN resumed the stand:

5734 COUNSEL FOR DEFENDANT. I want to introduce portions of a report on "The Influences of Forests on Climate and on Floods, contained in a document headed "House of Representatives, United States Committee on Agriculture—A Report on 'The Influence of Forests on Climate and on Floods,' by Willis L. Moore, LL. D., Sc. D. Chief of the U. S. Weather Bureau.—Note. When Professor Willis L. Moore was before the Committee on Agriculture of the House of Representatives in 1909, to explain the estimates for the Weather Bureau, a discussion arose as to the influence of forests on climate and on the run-off water. Professor Moore stated that he was then making some studies on the subject which might lead to some definite conclusions, and he was requested by the chairman of the Committee to continue these studies and make a report when they were concluded. This has been done, and the report submitted by Professor Moore, which follows, is printed by direction of the Committee.

Washington Government Printing Office, 1910."

I read from what is page 3 of the pamphlet (reading):

"One of the most important problems before the American people today is the protection of their natural resources against either the greed of those who would

monopolize them for their own individual benefit or those who, while well meaning, would through ignorance
5735 destroy our heritage and leave posterity poor.

In the discussion of matters concerned with the conservation of the natural resources of the nation, some of which may involve the expenditure of hundreds of millions of dollars and the employment for years to come of thousands of public officials, a consideration of the relation of forests to climate, floods and low water is vitally important.

While much has been written on this subject, but little of it has emanated from meteorologists or from those in the public service who have been actively engaged in the forecasting of river stages, both of high and of low water. In the prosecution of such duty these officials have become acquainted with the physical facts involved in the problem and are therefore well fitted to speak on the relation of such facts to stream flow.

THE AUTHOR ACKNOWLEDGES A CHANGE OF OPINION.

It has frequently been stated that forests control the flow of streams, both in high water stages and in low water stages, and that the climate is so materially affected by the cutting away of the forests that droughts have largely increased and that the well-being of future generations is seriously menaced. It is my purpose to
5736 present facts and figures that do not support these views, some of which, especially those that pertain to the flow of streams, were held by me up to a few years ago—until a careful study of our own and other records and of the incidents of history caused me to modify my opinions. I shall endeavor not to be dogmatic, but rather to present the reasons for the conclusions that I now entertain, with, so far as may be, statistical and historical evidence to sustain them. And I reserve the right to change or still further modify my views if the presentation of new facts and figures render such a course logical, and do not consider that I shall stultify myself in so doing."

COUNSEL FOR DEFENDANT. Also I read from page 8, as follows (reading):

"Professor Abbe further says:

If gauges are raised up year by year, the deficit increases; if gauges in open fields become surrounded by growing trees or higher buildings, the deficit increases.

The climate has not changed, but the errors of the record have done so. Those who wish to restore the good old times before the forests were cut down, when rain and snow came plentifully and regularly, have only to lower and shelter their rain gauges and snow gauges, and, presto, the climate has changed to correspond.

When rain is falling on a forested region, about 25
5737 per cent. is temporarily held far above the ground on the leaves and branches of the trees. In this minutely divided condition, exposed to the action of the wind, the drops evaporate freely, so that the forest atmosphere becomes saturated and decidedly less moisture reaches the ground to be absorbed in the forest humus than on an equal volume of soil outside the forest. A special climate is therefore maintained within a forested area. The temperature is lowered and the relative humidity is increased, but there is no evidence that this local forest climate extends outside the forest or affects exterior conditions to any important extent. Of course, the climate under a tree or a tent or within a house differs from that outside, but these are local matters quite foreign to the broad question, Do forests affect climate?

The climate within a house is not the climate of the whole city, nor is the climate of a ravine that of the surrounding fields. One thermometer or rain gauge in the open air does not give the climate of a State or water shed. The various and restricted uses of the word 'climate' have led to our confusion."

COUNSEL FOR DEFENDANT. I read next from page 16 (reading):

"On the whole it is probable that forests have little to do with the height of floods in main tributaries and principal streams, since they occur only as the result of extensive and heavy rains, after the ground is every-
5738 where saturated, or when heavy warm rains come on the top of deep snows."

Also from pages 33 and 34, I read the following (reading):

"I believe that the reader will acknowledge that I have shown in the several preceding paragraphs that the average discharge of the Ohio River, where I presume deforestation has been as great as in any other part of the country during recent time, has not changed for a period of thirty-eight years, except as caused by

precipitation. It will now be interesting to know how the two periods compare with regard to extremely high water and extremely low water, and this will be discussed in the coming pages.

High water and low water on the rivers of the Ohio basin.—I had Prof. H. C. Frankenfeld, Chief of the River and Flood Division of the Weather Bureau, compile the data from one station on the Cumberland, three on the Tennessee, and five on the Ohio, and establish the average high water for the four wet months, January to April, and the average low water for the four dry months, July to October. He then took the departure from the normal, both for the precipitation and for the height of the rivers, and found that the average high water was no higher and the average low water was no lower for the last half of the period than for the first half. The differences were so slight as to be inappreciable, but what changes occurred were in favor of the low
5739 water being slightly higher and the flood waters slightly less. There were variations in the periods and intensities of floods that bear a direct and proper relation to the precipitation. In making his report, Professor Frankenfeld points to the fact that the low water stages at Pittsburg, Pa., and Nashville, Tenn., are not fairly comparable with those of the other stations on account of permanent pool stages caused by dams operated during the low water season for purposes of navigation. The first dam below Pittsburg was placed in operation in 1885, and that at Nashville in 1904. The effect of these dams is to furnish higher low water stages than would result without them. The effect upon the normal low water stage at Nashville was not marked, but at Pittsburgh it was perceptible. However, in his conclusions he did not make allowance for the slightly higher low water stages at Pittsburg on account of the dam, but when included with the other stages of the river this defect probably is not apparent.

According to our line of reasoning, which we believe to be fair and conservative, it is shown that the average discharge of the Ohio River is not greater as the result of deforestation during the last nineteen years than during the preceding like period, and that the average high water in the rivers of the entire basin, which in-

cludes the Tennessee, the Cumberland, and the Ohio, is not higher and the low water is not lower."

5740 COUNSEL FOR DEFENDANT. I also offer in evidence the following extract which appears on pages 37 to 38 (reading):

"Conclusions.

(1) Any marked climatic changes that may have taken place are of wide extent, and not local, are appreciable only when measured in geologic periods, and evidence is strong that the cutting away of the forests has had nothing to do with the creating or the augmenting of droughts in any part of the world.

(2) Precipitation controls forestation, but forestation has little or no effect upon precipitation.

(3) Any local modification of temperature and humidity caused by the presence or absence of forest covering, the building of villages and cities, etc., could not extend upward more than a few hundred feet, and in this stratum of air saturation rarely occurs, even during rainfall, whereas precipitation is the result of conditions that exist at such altitudes as not to be controlled or affected by the small thermal irregularities of the surface air.

(4) During the period of accurate observations, the amount of precipitation has not increased or decreased to an extent worthy of consideration.

(5) Floods are caused by excessive precipitation and the source of the precipitation over the central and
5741 eastern portions of the United States is the vapor borne by the warm southerly winds from the Gulf of Mexico and the adjacent ocean into the interior of the country, but little from the Pacific Ocean crossing the Rocky Mountains.

(6) Compared with the total area of a given watershed, that of the headwaters is usually small, and, except locally in mountain streams, their run-off would not be sufficient to cause floods, even if deforestation allowed a greater and quicker run-off. Granting for the sake of argument that deforestation might be responsible for general floods over a watershed, it would be necessary, in order to prevent them, to reforest the lower levels with their vastly greater areas, an impossibility unless valuable agricultural lands are to be abandoned as food-producing areas.

(7) The run-off of our rivers is not materially affected by any other factor than the precipitation.

(8) The high waters are not higher, and the low waters are not lower than formerly, in fact, there appears to be a tendency in late years toward a slightly better low later flow in summer.

(9) Floods are not of greater frequency and longer duration than formerly."

COUNSEL FOR COMPLAINANT. Objection; incompetent, irrelevant and immaterial; do not refer to specific conditions existing on Desplaines watershed. Witness not present for cross-examination.

J. W. WOERMANN:

Cross-Examination by Mr. Cressy (Continued).

5742 Have located some of the references in the abstract of the State case which were the basis of my statements on Woermann Exhibit 1 as to the construction and destruction of obstructions at one time or another in Desplaines
5743 river. On page 617, abstract of State case, John McGowan states there was dam on each side of Treat's Island in 1835, which is the date I have on the map. McKees dam he says existed in 1836, which is same as Cass Street Dam. On page 1030 Thomas A. Mills remembers there was a dam on each side of Treat's Island when he was a boy. The saw mill stopped operating in 1858 or 1859. Dams
5744 remained three or four years afterward. At page 1106, Isaac W. Richards, states that Malcolm's Mill, and Adams' Dam were in use in 1866. That is simply confirmatory. On page 511, George Alexander states that he remember's Beard's Dam and Treat's Island dam when he was a boy; prior to 1842. On page 1041, James Cornelius, born 1845, saw Beard's dam first when he was 8 or 10 years old. It remained there about ten or fifteen years after. On page 550, Lewis K. Stevens, states that prior to 1848 there was a dam at Jefferson street, which is dam No. 2. The old Malcolm or Adams' or Haven dam, the three names being applied to the same dam by different witnesses, remained there until the Drainage Canal took it out. There was an-
5745 other dam at Lockport. Page 613, Franklin Collins says that Daggett's dam was built in 1837 or 1838, and

the McKee dam above the Jefferson street bridge existed at that time.

5746 The opinion of the Supreme Court in *Canal Trustees* v. *Haven,* page 554, volume dated 1886, is as follows (reading):

"It is admitted that the Illinois and Michigan Canal was commenced in 1836, and that portions of the canal through said sections were put under contract in 1838, and the guard lock on section nine near the dam across said river, first above said section sixteen, was commenced in 1840 by digging the pit in the spring and a part of the stone laid in the fall. The stone for the same was quarried and dressed during the spring and summer of the same year. The stone for the said dam, on section nine—which would be dam No. 2—(which is a cement and cut-stone dam), was commenced being quarried and cut the same season, and the dam was commenced the following season, in the spring, and finished in the fall of 1841. The contracts for building said dam and locks were made in 1839, that said lock and dam were to be built.

It is agreed that in the spring of 1839, the plaintiffs commenced building a mill on said lot one, in block fifty-seven, on section sixteen, and also a dam across the Desplaines river, connecting said lot one in block fifty-seven on the east bank of said river with the division line between lots one and four in block fifty-six, on the west bank of said river, and completed said dam and saw mill so as to use the same in the following October or November."

5747 The dam in section sixteen being Adams' or Malcolms' dam. Page 1051, abstract State case, Jeremiah Collins came to Grundy County in 1834; lived five miles from Illinois and over six to Desplaines. He said:

"Mr. Treat had a mill at Treat's Island; there was water power there. That is the only thing I know the river was used for. I knew Johnny Beard. He built a dam and saw mill about 1836 or 1837. I do not know whether the dam was there after they built the aqueduct or not. That was built in 1848."

Re-direct Examination by Mr. Scott.

The highest salary paid to any assistant engineer in employ of United States government, Army Department, is $333
a month. One man gets that. He is located in New
5784 York City. Excluding army officers, only 12 men draw
salary of $300 a month, which I get. The earthen portion of dam constructed prior to beginning of state suit was sixteen feet wide on top, up stream, slope 3 horizontal to one vertical; downstream slope, upper portion, 3 horizontal to one vertical; and lower portion, 4 horizontal to one vertical. In the dam as actually planned, called for part earthen construction and part concrete. Earthen dam had concrete core wall through lower portion. Length of earthen dam from where it attached to tow path to point it extended out in river about 175 feet. That end constructed of earth to permit its being more readily removed by United States if it saw fit to put in lock at that point, provided it should have improved river for navigation. There was space allowed for lock at that point which had been approved by War Department.

Objection; motion to strike out as to approval, etc. Adams' dam is indicated on the Wilson profile at the point where the inclined line representing the rapids is stopped.
That point being connected with vertical line giving its
5750 elevation, the elevation of water surface; and that elevation and the distance horizontally of point from head of Lake Joliet correspond with elevation of water surface at foot of Adams' dam, and with distance of Adams' dam from head of Lake Joliet. The basis for the 8 inches I took as average run-off is data given in Harman's report on rainfall and run-off. He says average for entire Illinois valley about 25 per cent. of total rainfall for year. Harman's data covers percentage for fall and summer months and shows that greater part of eight inches rainfall frequently runs off in
two or three months, leaving only few inches run-off for
5751 maybe eight or nine months. Page 180 of Harman's report gives table showing average monthly rainfall on Illinois river basin above Peoria; average monthly run-off at Peoria, Ill.

COUNSEL FOR DEFENDANT. We offer in evidence table appearing on page 180, which table is in words and figures following, to-wit:

5752 "Average Monthly Rainfall on Illinois River Basin above Peoria and Average Monthly Run-off at Peoria, Illinois.

Month	1890. Off.	1890. On.	1891. Off.	1891. On.	1892. Off.	1892. On.
January	1.025	3.01	.185	2.23	.260	1.40
February	.712	1.58	.238	2.23	.364	1.53
March	.802	2.78	.739	2.56	.652	2.21
April	1.628	3.09	1.903	3.89	1.722	4.35
May	1.093	4.66	.839	2.17	3.889	9.63
June	1.436	6.61	.496	4.16	3.020	9.18
July	.583	.93	.218	2.80	2.318	3.42
August	.089	2.54	.108	4.08	.481	1.86
September	.109	1.75	.088	.87	.193	1.97
October	.151	4.41	.076	.94	.234	.79
November	.159	1.69	.146	4.22	.185	2.36
December	.185	.74	.298	2.15	.241	1.84
Annual	7.97	33.79	5.33	32.30	13.56	40.54

5753 "Average Monthly Rainfall on Illinois River Basin above Peoria and Average Monthly Run-off at Peoria, Illinois.

Month.	1893 Off.	1893 On.	1894 Off.	1894 On.	1895 Off.	1895 On.
January	.186	1.80	.288	2.10	.126	1.43
February	.984	2.26	.344	1.58	.182	.54
March	3.132	2.51	1.141	2.77	.504	1.13
April	2.064	5.41	.664	2.77	.420	1.96
May	2.440	2.78	.706	3.46	.205	2.46
June	1.254	3.12	.293	2.26	.116	1.74
July	.291	1.78	.139	.61	.220	4.04
August	.115	.36	.101	1.23	.153	3.50
September	.107	2.90	.275	7.61	.206	2.28
October	.147	1.51	.153	1.35	.135	.84
November	.148	2.41	.173	1.90	.172	3.76
December	.191	1.96	.210	1.08	.925	5.63
Annual	11.06	28.80	4.49	28.72	3.36	29.81

5754 Average Monthly Rainfall on Illinois River Basin above Peoria and Average Monthly Run-off at Peoria, Illinois.

Month	1896		1897		1898		1899	
	Off.	On.	Off.	On.	Off.	On.	Off.	On.
January	1.306	1.02	1.912	5.59	.322	3.88	.809	1.57
February	.945	1.95	1.674	1.75	1.275	2.44	.526	1.30
March	1.156	1.62	2.900	4.22	2.658	5.46	2.295	2.99
April	.588	3.48	2.119	3.14	2.476	1.84	1.490	1.11
May	.598	5.26	1.053	1.39	1.451	4.76	.596	5.93
June	.636	3.07	.475	4.52	1.339	5.04	.500	2.39
July	.296	5.57	.473	3.18	.357	1.51	.241	4.34
August	.705	2.87	.155	1.99	.225	4.28	.141	2.27
September	.349	7.42	.146	.97	.283	4.07	.153	2.99
October	.590	.54	.128	.42	.315	4.30	.172	2.75
November	.543	2.86	.177	3.86	.800	2.43	.224	1.77
December	.449	.37	.146	1.60	.512	1.48	.290	1.70
Annual	8.16	36.03	11.34	32.63	12.01	41.49	7.44	31.11

5755 COUNSEL FOR DEFENDANT. Is there any further data there?

A. That refers to the second question.

On page 183 of Mr. Harmon's report, he makes the following statements (reading):

"The average run-off is 8.46 inches with an average rainfall of 33.52 which is 25.2 per cent.

All of this data includes the flow from the Illinois and Michigan canal, which is equivalent to .6 of an inch per annum over the entire basin of the Illinois above Peoria. If this be deducted the run-off would amount to 7.86 inches or 23.4 per cent. It will be seen that while the average run-off for the upper Illinois basin does not vary materially from other streams in this latitude, that the variation in run-off from year to year and from month to month is very great. From the lowest to the highest in the table given, the lowest in 1895, 3.36, and the highest in 1892, 13.55, the range in run-off is over 400 per cent. The actual low water flow at Peoria during the last ten years has for days and sometimes weeks been as low as 1,000 to 1,200 cubic feet per second, approximately 600 cubic feet of which, has been furnished

through the Illinois and Michigan canal by the pumps at Bridgeport; this quantity being sewage from the south branch of the Chicago river, and often being more than half and occasionally as much as three-quarters of the entire flow at Peoria. The effect of a flow through the new drainage channel of 5,000 cubic feet per second or more can very easily be imagined from the foregoing data when we understand that the natural flow of the Illinois river at Peoria has apparently been as low as 200 to 300 cubic feet per second."

Then on page 184 Mr. Harman gives a table entitled "Des Plaines River Basin Above Riverside. Rainfall During 'Off' and Actually Falling 'On,' " for the years 1887 to 1898, inclusive, which I presume had better be copied in.

COUNSEL FOR DEFENDANT. We offer that in evidence. Table appearing on page 184 and all of page 185:

"Des Plaines River Basin Above Riverside.
Rainfall Running 'Off' and actually Falling 'On.'

Year	Off Inches.	On Inches.	Per Cent. of Rain Running Off.	Second Feet Per Square Mile.
1887	13.18	29.13	45.2	1.00
1889	6.13	34.95	17.6	0.45
1893	10.38	29.03	35.8	0.76
1894	7.44	27.80	26.8	0.55
1895	3.08	30.48	10.1	0.23
1896	5.04	33.74	15.0	0.38
1897	14.05	30.55	46.0	1.03
1898	10.92	37.74	29.0	0.81
Averages	8.777	31.68	27.7	0.65

5757 "It will be observed that the range in run-off is from 3.08 inches with a rainfall of 30.48 inches for the year 1895 to a run-off of 14.05 inches with a rainfall of 30.55 in 1897. From a watershed which is recognized as a comparatively impervious area, this range is accounted for by the fact of very low rainfall in 1893 and 1894, preceding the small run-off in 1895. The high run-off

of 1887, 1893, 1897 and 1898, is due in each case to winter freshets. An examination of the details of the tables of run-off shows 8.12 inches of run-off against an exactly equal amount of rainfall in the first three months, January, February and March, 1887, and 5.47 inches of run-off to 6.21 inches of rainfall in the corresponding months of 1893. In 1897 and 1898 the run-off for the same three months was 11.24 inches and 7.88 inches respectively. In 1895 when the very low run-off of 3.08 inches occurred, the run-off for the first three months of the year was only .92 of an inch. It is also noted that in 1895, with a rainfall of 30.48 inches and a run-off of 3.08 inches and in 1897 with a rainfall of only .07 of an inch more for the whole year, or 30.55 inches, the run-off was 14.05 inches. Again in 1898 with a rainfall of 30.74 inches the run-off was 10.92 inches. During the summer months one of the highest rainfalls recorded was 9.56 inches, in July, 1889, and produced a run-off of only 1.09 inches. Another record of excessive summer rainfall (the record for the year not being complete) was in May and June, 1892; the rainfall in May was 6.77 inches and in June 10.58 inches, the run-off being 4.58 inches and 6.06 inches respectively. The winter, spring and early summer storms are therefore capable of producing heavy freshets, and consequently large run-offs from the Desplaines water shed; but heavy rains do not produce a corresponding run-off if occurring during the summer or fall. From this it is evident that the condition of the surface of the basin, as affected by temperature, being impervious when frozen and covered with snow, is the greatest factor in producing a large run-off. Whenever the rainfall may be slight during the spring and early summer months, there will be a correspondingly small run-off for the year.

The following table shows the run-off from the Des Plaines river at Riverside and the Ilinois river at Peoria for the years 1893 to 1898, inclusive:

Comparison of Run Off

	Illinois River Basin. Above Peoria.			DesPlaines RiverBasin. Above Riverside.		
	Depth in Inches			Second Feet Per Square Mile		
	Des Paines	Illinois	Illinois Less Canal	Des Plaines	Illinois	Illinois Less Canal
1893	10.38	11.06	10.46	0.76	.815	.769
1894	7.44	4.49	3.89	0.55	.331	.285
1895	3.08	3.36	2.76	0.23	.247	.201
1896	5.04	8.16	7.56	0.38	.600	.554
1897	14.05	11.26	10.66	1.03	.826	.780
1898	10.92	12.01	11.41	0.81	.884	.838
Averages	8.48	8.39	7.79	0.63	.617	.571

The average run-off from the Des Plaines river basin is 8.48 inches and from the Illinois river basin 8.39 inches. There is some variation in the depth of run-off and second feet per square mile, but some general relation exists. In 1897 and 1898 there is, however, quite a divergence which is worthy of note. In 1897 the run-off from the Desplaines basin was 14.05 inches, and from the Illinois basin 11.26 inches. In 1898 the run-off from the Desplaines was 10.92 and from the Illinois 12.01. In order to understand why the run-off from the Desplaines should be more in 1897 and less in 1898 than from the Illinois, we are compelled to compare the rainfall with the run-off by months. In January, 1897, with an average rainfall upon the upper Illinois of 5.59 inches, there was a run-off at Peoria of 1.91 inches. On the contrary, an average rainfall of 5.37 inches on the Desplaines was accompanied by a run-off of 5.26 inches. During the succeeding months of the same year the run-off and rainfall are nearly proportional, so that the excessive run-off for the one month of January places the run-off for the year abnormally high for the Desplaines. The difference in run off for the year 1898 is not so easily discovered.

There was a large run-off from the Illinois at Peoria for each of the months of February, March, April, May and June, the largest being in March, 2.66 inches. On the Desplaines basin over half of the run-off for the entire year was during the same month, being 5.83 inches. These very considerable differences in run-off per month do not make so great a difference in the actual run-off per year, but go to show the wonderful equalizing tendency of the larger area of the Illinois together with its great storage capacity in the wide valley from Utica to Peoria."

5760 The WITNESS (continuing): The discharge of a stream at a certain point cannot be computed accurately by using average slope for considerable distance where, as a matter of fact, slope is not uniform. Counsel for complainant had me compute discharge corresponding to depth shown on 1867 profile. Can compute it more accurately by taking slope at particular point shown on 1883 profile, which is drawn in greater detail. The maximum slope at that point, according to the 1883 profile, is about one foot in four hundred. Taking that as the slope, and a depth of four-tenths, gives velocity of nine-tenths of foot. Taking width at 180 and average depth as three-tenths, as used in computation made for complainant's counsel, area would be 54 second feet, and discharge 48.6 cubic feet per second. Same remarks apply to section on Joliet rapids for which complainant's counsel had me compute discharge. Maximum slope at that point,

5761 according to 1883 profie, is about one foot in 600. Taking that as slope and depth as five-tenths, velocity would be nine-tenths, or trifle less. Practically same as at mouth. Taking width at 350, average depth as three-tenths, the same as in computation for complainant's counsel, area is 105 square feet and discharge 94.5 cubic feet per second. Result got for complainant's counsel was 44.5 cubic feet per second. Based on average slope as shown on Wilson profile. As to formation of ice in drainage canal, conditions are there which have effect on formation of ice in channel which would not be present in stream in natural condition. Great quantity of sewage which comes into Chicago river and Drainage Canal and heated water from condenser plants and other manufacturing plants on Drainage Canal all tend to raise the temperature to considerable extent, which elements would

have effect on formation of ice in Desplaines below
5762 mouth of Drainage Canal because practically all that water flows into Desplaines. Computations an engineer can make as to discharge in certain portions of river, for instance rapids, are not complete enough to enable him to draw accurate flow line for smaller flow. After devoting considerable time to subject of preparing profile showing flow line from Joliet to mouth for various small depths at Riverside, concluded that on account of great irregularities in width, slope, obstructions, boulders and loose rock and various elements, would be impossible to draw flow lines for small quantities which would have value, or which would care to testify to or to stand for. These irregularities serious enough in large rivers. Smaller the volume more effect irregularities have; more indeterminate they become. Finding it impossible to arrive at conclusions on such computations, took profiles actually determined during government surveys, specifically the 1867 and the 1883 profiles and instead of attempting to compute flow lines took those actually determined in field during surveys and worked backwards, as it were, to determine quantity of water which these actual profiles corresponded to, which was course I pursued in preparing for my testimony. In those quantities re-
ferred to heretofore, where result was 21 cubic feet
5764 per second at mouth and 44 cubic feet per second at rapids at Joliet, question was asked which I considered more reliable. On spur of moment answered one at mouth. After careful consideration, think spoke too hastily and that the upper one is more reliable. Computations I made, 21 second feet at mouth and 42 second feet some 12 miles up stream made from Wilson profile and other assumptions made by counsel for complainant, throws light on incompleteness of hydraulic elements and therefore, uncertainty of conclusions, because it is evident to anyone that discharges would not be twice as great at Joliet as at mouth. Everyone would agree that river would discharge more water at mouth than it would at Joliet, with added territory between two points, yet results come out just opposite way.

As to whether I think it fair to assume that the condition of the Desplaines river at its mouth in 1867 was the same, as it was in 1883, if you refer to depths, would say, no.

Q. I refer to cross section of the river at that point.

A. I take it, you are directing your question toward the computation which I made a few moments ago, and I would say—

Q. Answer the question.

A. I would say in that connection the only thing I used the 1883 profile for was to determine the slope. As a matter of fact the slope was probably greater in 1867 than it was in 1883.

(Motion to strike out the answer as not being responsive to the question. Question reread.)

A. If my answer does not answer it, Mr. Cressy, you will have to be more specific because I have endeavored to answer your question.

Q. I asked you to draw from the profile the depth and to also get from the Wilson report the cross section, which he did. I only asked you to assume that three-quarters of the greatest depth would be the mean depth which is in accord, is it not, with the general practice among engineers

5766 determining the area of a cross section.

A. I do not believe there is any general rule about that.

Q. Is it not a fair assumption?

A. That is probably as near as you can estimate it without knowing. It simply illustrates the point again that we do not know, we have not the data, and if we must guess, why that is probably as good a guess as we could make. I got the width from the map entitled "Woermann Exhibit No. 1."

Q. Did I not ask you if it was the width in 1867 and you answered that it was?

COUNSEL FOR DEFENDANT. Objected to as having no relevancy to the question and answer just given. I do not understand that the width and cross section are the same thing.

COUNSEL FOR GOVERNMENT. Answer the question.

A. Well, to save time, suppose I admit I did say that.

5767 Q. Now read the question which you declined to answer just a moment ago.

Objected to on the ground that the witness did not decline to answer the question.

Question read, as follows:

Q. Do you think it fair to assume, Mr. Woermann, that the condition of the Desplaines river at its mouth in 1867 was the same as it was in 1883?

A. No, sir, it was different in 1883 from what it was in 1867. The slope wasn't the same in 1867 that it was in 1883. I think it was steeper in 1867 and in that respect the estimate which I have made is smaller, in other words it is in your favor, if I might express it that way. As to what I base the statement on that it was steeper in 1867 than it
5768 was in 1883, would say that as your volume increases your slopes gradually flatten out until at high water you have a very flat slope. As to whether there would be steeper local slopes but the general slope would not change, would reply that the local slope is what I used and what must be used to get anything worth considering at all. I criticized the profile of 1867 because it did not give the local slope but only gave a general slope and for that reason used the profile of 1883. Being asked if I could use the slope of 1883 and get a more desirable result, why I could not use the cross section of 1883 and get a more reliable result, would say that one would get a more reliable result if they platted a cross section. Supposing the cross section of 1883 platted showed only 1/3 or 1/4 of the width that I had assumed the width to be in 1867, as to whether my volume would be proportionately decreased, would say that the width was not assumed, it was scaled from the map which was introduced as Woermann Exhibit 1. It was the narrowest point close to the mouth and I scaled it at the time the map was made and wrote it in in ink. I scaled it from
5769 the government map, the 1883 survey. At the stage of water which corresponded to the profile of 1883.

Q. That would not be the width, would it, for 1867?

A. Not exactly, but I think that the error in width would be very much less in error than the assumption as to depth.

Motion to strike out the answer as not responsive to the question and as being a volunteered argument of witness.

In my survey 1902-1905, in which I had surveying parties out, I corrected up the depths for the Desplaines river

and its mouth. I did not examine that in checking up to ascertain whether there was a width of 180 feet or not at the mouth in 1867. If I had checked that up and assumed the depth that Wilson assumes, I could tell approximately what was the width in 1867.

Q. Suppose you do that, take the cross section at the mouth of the river and find what it would be on a depth of .4 of a foot.

A. I have not the facilities here for platting cross sections at this time.

5770 COUNSEL FOR GOVERNMENT. Here is a cross section which appears at 600 feet below the old dam. That would be in the neighborhood of the mouth of the river, would it not?

A. Yes, sir, a short distance above the mouth.

Q. That would be the nearest point, would it not, from your soundings that we have any cross section of the soundings? You can compare those soundings, to see whether they are correct or not, if you like.

A. If you state that those are the soundings as platted—what soundings are those?

COUNSEL FOR GOVERNMENT. These are your soundings and here is your 1883 line run in there (indicating). And there is your low water line of 1901.

A. Where is the 1883 line?

Q. This pencil line in here as I understand it (indicating). Where it says "1883," and there is 1901 at the top.

A. What is this in red?

Q. This in red is for a depth of .4 of a foot.

A. At this point.

Q. At the deepest point, .4 of a foot.

A. But in a narrow channel like that General Wilson or Mr. Worrall would not run the center line of the proposed improvement away over to one side like that.

5771 Q. You see here is 38, 42, 49, 40, 44, as the soundings under your profile of 1901. Now, assuming a depth of four-tenths of a foot, you estimate that on the greatest depth it would be .49 feet?

A. Just as you pointed out yourself in cross-examination, that proposed center line does not follow the line of greatest depth. Furthermore, during the years that have elapsed from 1867 to the present time, with this large and steady

flow from the drainage canal, it is quite possible, if not probable, that that bottom has been scoured out and may be quite different today from what it was then.

Q. So it would be impossible, would it, to determine what the conditions were in 1867 from any data that we have today?

A. It would be impossible to determine what the exact width was. Your own cross section shows that the banks proper come down very steep and a difference in depth of a foot or two probably would not make ten feet difference in the width.

Q. What does this cross section actually show as to the width on a depth of four-tenths of a foot?

Mr. SCOTT. You are now speaking, when you say "this cross section" of this unidentified paper you have submitted to the witness?

Mr. CRESSY. Yes; I will state that it is a cross section
5772 which was prepared for me by Mr. Parry, a witness in this case, and for many years in the employ of the Sanitary District, as appeared from his testimony.

Mr. SCOTT. Yes, it fully appears in his testimony.

A. Your question was what?

Mr. CRESSY. On Mr. Parry's cross section, what width is there shown to be on a depth of four-tenths of a foot?

Mr. SCOTT. Objected to as incompetent, immaterial and irrelevant.

A. On this cross section, if you take this cross section as it existed in 1900, and put six inches of water in it, the width is a little less than 100 feet.

Mr. CRESSY. Four-tenths of a foot, you should say?

A. Four-tenths, yes.

Q. Instead of six inches. Would you say, Mr. Woerman, that these depths which Mr. Wilson gives, for example, the depth of four-tenths of a foot at the mouth of the river, was or was not the maximum depth in the stream?

A. That particular depth of four-tenths?

Q. Yes, sir.

A. I am unable to say. It may have been and it may not have been.

Mr. CRESSY. I guess that is all.

Whereupon it was agreed between counsel that counsel for the government should have the right to introduce extracts

from Rafter, Kuichling and Vermule, gentlemen who have been identified in the discussion of the Chittenden papers. Such extracts to be furnished counsel for the defendant.

Whereupon adjournment was taken subject to notice.



Vol. III

TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, [redacted] 1920

No. [redacted]104

ECONOMY LIGHT & POWER COMPANY, APPELLANT,

vs.

THE UNITED STATES OF AMERICA.

APPEAL FROM THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SEVENTH CIRCUIT.

FILED MAY 13, 1919.

(27,106)

IN THE

District Court of the United States

FOR THE NORTHERN DISTRICT OF ILLINOIS,

EASTERN DIVISION.

UNITED STATES OF AMERICA, *vs.* ECONOMY LIGHT AND POWER COMPANY.	IN CHANCERY. No. 29776.

ABSTRACT OF PROOFS.

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Re-direct	1026	2465
Collins, Franklin:		
Direct	2586	†1708
Cross	2588	†1714
Collins, Jeremiah:		
Direct	2648	†3529
Cross	2649	†3540
Comstock, Adam:		
Direct	2560	†1622
Cross	2566	†1639
Re-direct	2566	†1639
Re-cross	2566	†1640
Recalled:		
Direct	2716	†4414
Cross	2718	†4428

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Cross	345	1571
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Cross	669	1578
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Re-cross	792	1875
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Direct	937	2244
Cross	963	2294
Re-direct	977	2333
Re-cross	979	2336
Coplantz, Cyrus:		
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Cross	2652	†3693
Cornelius, James:		
Direct	2646	†3485
Cross	2647	†3491
Re-direct	2648	†3499
Countryman, Joseph:		
Direct	2266	*386
Cross	2269	*391
Re-direct	2271	*395
Daly, Eugene:		
Direct	2262	*375
Cross	2262	*377
Dugan, D. H.:		
Direct	795	1894
Cross	797	1900
Re-direct	805	1923
Re-cross	805	1924
Recalled:		
Direct	884	2114
Cross	886	2121
Re-direct	888	2126
Re-cross	891	2132
Recalled:		
Cross	896	2144
Eidmann, H. F.:		
Direct	898	2149
Cross	899	2152
Elwood, James G.:		
Direct	2658	†3743
Cross	2660	†3752
Re-direct	2662	†3760
Erhard, George H.:		
Direct	2106	*20
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Field, Enos:		
Direct	2572	†1660
Cross	2574	†1668
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Direct	2236	*285
Cross	2237	*290
Re-direct	2239	*297
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Direct	2719	†4639
Cross	2725	†4658
Re-direct	2728	†4666
Re-cross	2729	†4667
Fox, George B.:		
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Gatons, Samuel:		
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Cross	2273	*399
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Re-cross	2275	*403
Re-direct	2275	*403
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Direct	2769	†5063
Cross	2777	†5083
Re-direct	2804	†5164
Re-cross	2807	†5175
Gurney, George F.:		
Direct	2508	†1391
Cross	2511	†1402
Re-direct	2513	†1415
Re-cross	2514	†1419
Re-direct	2514	†1420
Hammond, Seneca:		
Direct	2581	†1688
Cross	2583	†1695
Harper, Hobert W.:		
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Cross	1975	5424
Re-direct	1978	5431
Re-cross	1979	5434
Heilbron, E. H.:		
Direct	895	2142
Recalled:		
Direct	897	2146
Recalled:		
Direct	920	2205
Cross	924	2212
Re-direct	934	2238
Re-cross	935	2239
Heydecker, Christian T.:		
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Cross	2156	*101
Re-direct	2158	*106
Re-cross	2159	*106
Heyworth, James O.:		
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Cross	2198	*191
Re-direct	2201	*196
Re-cross	2202	*198
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Re-direct	2764	†4818
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Cross	2258	*354
Keen, James C.:		
Direct	2567	†1646
Cross	2570	†1655
Re-direct	2571	†1658
Killmer, R. W.:		
Direct	2598	†1752
Cross	2599	†1755
Re-direct	2601	†1759
King, Daniel W.:		
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Cross	2259	*362
King, John P.:		
Direct	2535	†1602
Cross	2559	†1616
Re-direct	2559	†1619
Re-cross	2560	†1620
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Re-direct	526	1276
Re-cross	529	1284
Re-direct	530	1289
Re-cross	532	1295
Re-direct	532	1295
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Lee, Judson F.:		
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Cross	1208	2998
Re-direct	1339	3541
Re-cross	1370	3612
Liljencrantz, G.:		
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Direct	2679	†4203
Cross	2680	†4208
Re-direct	2682	†4233
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Mead, Daniel W.:		
Direct	1989	5471
Cross	2000	5502
Re-direct	2005	5513
Meigs, Montgomery:		
Direct	858	2056
Cross	866	2072
Re-direct	880	2104
Re-cross	883	2110
Mills, Thomas A.:		
Direct	2635	†3406
Cross	2640	†3437
Re-direct	2645	†3483
Moore, Robert:		
Direct	2601	†3222
Cross	2606	†3250
Re-direct	2613	†3286
Re-cross	2614	†3293
Re-direct	2619	†3321
Re-cross	2620	†3327
Munch, Xavier:		
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Cross	2518	†1434
Re-direct	2520	†1445
Re-cross	2520	†1449
Munroe, George H.:		
Direct	2765	†4940
Cross	2768	†4950
Myers, William S.:		
Direct	2506	†1385
Cross	2507	†1389
McCaffrey, John:		
Direct	2666	†3932
Cross	2667	†3942

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Direct	2672	†4034
Cross	2673	†4044
Re-cross	2675	†4069
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Direct	2678	†4095
Cross	2679	†4098
Mackenzie, Alexander:		
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Cross	2112	*33
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Re-cross	2119	*48
Re-direct	2122	*52
Re-cross	2123	*53
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O'Brien, Peter:		
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Orr, Robert E.:		
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Cross	2187	*163
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Cross	2205	*204
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Cross	2261	*371
Palmer, Clarence H.:		
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Cross	2245	*312
Parry, Thomas F.:		
Direct	544	1331
Cross	545	1335
Re-direct	546	1338
Re-cross	547	1341
Recalled:		
Direct	964	2296
Cross	965	2298
Re-direct	976	2329
Recalled:		
Direct	1026	2468
Cross	1028	2471
Pryor, Nathan P.:		
Direct	2628	†3369
Cross	2630	†3379
Re-direct	2635	†3405
Quaife, Milo Milton:		
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Cross	1644	4363
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Rambo, J. W.:		
Direct	2669	†3955
Cross	2671	†3965
Reed, George W.:		
Direct	2101	*1
Cross	2104	*14
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Richards, Isaac W.:		
Direct	2654	†3714
Cross	2656	†3725
Re-direct	2657	†3742
Rudolph, Emil:		
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Re-direct	2353	*530
Re-cross	2356	*544
Schlink, Valentine L.:		
Direct	2294	*456
Cross	2295	*458
Re-direct	2296	*460
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Snyder, John M.:		
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Thomas, B. F.:		
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Re-cross	840	2013
Re-direct	844	2023
Re-cross	845	2025
Thorne, James W.:		
Direct	903	2161
Cross	904	2163
Re-direct	907	2174
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Direct	2371	*597
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Direct	2683	†4287
Cross	2695	†4335
Whisler. W. H.:		
Direct	2662	†3911
Cross	2664	†3919
Re-direct	2665	†3928
Williams, Edgar:		
Direct	2364	*574
Cross	2367	*586
Williams, Stephen J.:		
Direct	2499	†1362
Cross	2502	†1370
Re-direct	2505	†1382
Woermann, J. W.:		
Direct	1031	2476
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Cross	1934	5307
Cross	1980	5438
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IN THE

District Court of the United States

FOR THE NORTHERN DISTRICT OF ILLINOIS,

EASTERN DIVISION.

UNITED STATES OF AMERICA, *vs.* ECONOMY LIGHT AND POWER COMPANY.	IN CHANCERY. No. 29776.

SUPPLEMENTAL ABSTRACT.

The following is an abstract of certain depositions, testimony and other data, introduced in the case of the People of the State of Illinois, *Ex Rel.* v. The Economy Light & Power Company in the Supreme Court of Illinois in the February Term, 1909, No. 6242, on appeal from the Circuit Court of Grundy County, Illinois, introduced in this case in pursuant of stipulation authorizing such introduction on behalf of the United States and is as follows:

DEPOSITIONS AND TESTIMONY.

WITNESSES.

George W. Reed
G. H. Erhard
Gen'l. Alex. McKenzie
Theodore E. Burton
William Lorimer
Christian T. Heydecker
J. H. Hillebrand
Clarence H. Palmer
John M. Sweeney
Robert E. Orr
George B. Fox
James O. Heyworth
Arthur C. Clement
W. W. Stevens
Harlow H. Spoor
James R. Flanders
Obadiah Hicks
George A. Parrent
George Abbott
Edward D. Brockway
Eliza P. Jones
Sam Jones
Daniel W. King
Frank Paddock
Eugene Daly
Charles Clay
Joseph Countryman
Samuel Gatons
John W. Taylor
William R. Tibbals
W. H. Bing
Valentine L. Schlink
Emil Rudolph
Herman H. Bremer
Edgar Williams
S. A. Van Sant
William H. Zarley

GEORGE W. REED, a witness for complainant, testified as follows:

Page of Supplemental Transcript.

1 I live in Bradford, Stark County, Illinois. I will be
2 eighty-four years old the 2nd of March, 1908. I was born March 2nd, 1824, in Clark County, Indiana, near Terre Haute. I came to Illinois in 1829, to what was called Reed's Grove, in Will County. My father settled in that place and bought the land there and it was called Reed's Grove. It was nine to ten miles from Joliet, pretty near south, and three
3 or four miles from the Desplaines river. I lived with my father. I was only four or five years old then. Father bought and sold land. At one time he was considered worth $100,000, which was a good deal of money them times, but he soon lost it. We were there all the time except a short time we went back to Indiana during the Black Hawk War (1831). We stayed in Indiana about four months and came back in the fall of the year. We came back to where my father founded a site where Joliet now stands and he built a log
4 cabin and started to construct a dam and mill. It was in 1832, in October or November. We built a cabin there, about four rods from where the old National Hotel stands now. Mr. George H. Woodruff, one of our old historians, had a drug store there across the street for forty years before he died. Father was digging a race and contemplating
5 building a mill for grinding corn and wheat. He began building a dam in the river near the south end of the Jefferson street bridge. We lived in Joliet until 1836 or 1837 and then moved back to our old farm at Reed's Grove. In 1840, or a little later, my father moved to Winnebago County with me and in a year or two we returned to Reed's Grove. I left Reed's Grove in 1855 for good and went to Mercer County, farmed same and settled a canal claim. I farmed in Mer-
6 cer County a couple of years and came to Stark County in 1857 and have lived on my farm here and here in Bradford ever since except three years that I was in the army. I owned my farm in Stark County and do now. After coming back from the army I moved to Bradford and engaged in mercantile business, continuing in it for over thirty years.
7 My money is still in the business, as a silent partner. When we lived in Joliet and Will County there didn't

seem to be many fords in the river. I don't remember of crossing at but two or three places in the nine miles of the stream from there down, and that was in low water. One
8 ford was just below a little islet about 150 yards below my father's dam. Along in the summer, in the dry or low stage of the water it would come up over the wagon hubs, pretty near up to the wagon box, in fording it. There was another ford about three miles down, just below an islet. That was fully as deep as the other. It did not seem to be a shallow riffle at all, but we picked it out for a good smooth ford, the best that we could find. There was one just about a mile east of Channahon. Was similar to the others, about the same depth. I saw but little difference. There were but very few people there then and they forded generally when they could. Some forded when it was pretty deep; some crossed in skiffs and little boats they had. I don't remember them having
9 a ferry boat. There was no bridge except a foot bridge put up on long slabs in the upper part of the town. They had that one season. In high water it was between a quarter and a half mile wide; in low water it was not near so wide. I went up and down the river fishing a good deal while living at the point now Joliet. During the first year of our work there, when father had his dam partly in, one day we heard music on the river and I saw a boat coming down the river with some people on it. They were playing a long horn of some kind and seemed to be enjoying themselves bully. They came right along and went on through and down the river without any trouble whatever. It seemed to me, as far as I can remember now, that it was a kind of a flat boat or scow or maybe a ferry boat. It must have been about 30 or 40
10 feet long, maybe as long as 40 feet, and 16 to 20 feet wide. It looked to me like it was about 4 feet deep and drawing about 2 to 2½ feet of water. It might have been an old boat that this family had bought up north in Wisconsin or some place and was going down south on. They said they were going to a warmer country and that it was too cold up north for them. There were five people on the boat anyway, some men and some women. They had farming utensils and bed clothes, chairs and such like, sacks of provisions and carried a pile of such things as a family would have. We were four or five rods from them. That must have been about 1833 or near
11 that. I have nothing down by which to fix it except the Indian war and one thing and another that I remember

along about then. I observed that boat for ten or fifteen minutes, I suppose. I saw it coming from up the river for half a mile and saw it go down for half or three-quarters of a mile. It was propelled just by the current. I suppose they had paddles or poles to keep it from the shore and off the rocks. I did not see the boat have any trouble whatever in going down the river. They said they had gotten along nicely. I can't remember any other boats except skiffs. They passed up and down the river without any difficulty. By small boats I mean skiffs, scows, flat boats and the like. I wouldn't think there would have been any difficulty in using them all the time, at all seasons.

12 During most of the year the Desplaines river was of sufficient depth to permit the navigation of boats for commercial purposes. There might have been a drought or low water and at that stage it would not have been safe, but as a general thing through the biggest part of the year it took such boats as I speak of up and down without any trouble. I know that to be a fact from my knowledge of the depth of the river, as I observed it at that time. That is the way I looked at it—the depth of the river. I remember one time when I was living at Reed's Grove, before I moved south in Mercer County, that my brother was down at the river and got some wheat from a man who had gotten the wheat wet in transporting it in a boat and was selling it to the farmers. My brother fetched home five or six bushels and we spread it out on sheets and quilts to dry and use it. It was spoiling as it was, and we had to dry it to keep it from spoiling.

Q. How did that wheat get wet?

Objected to by defendant on account of calling for a conclusion, not a matter of knowledge to the witness.

A. I could not say—only this is what they said—that it got wet in a boat and they had to sell it or throw it away, so it would not do to take it along wet to market.

13 I won't swear where it was they were taking it, whether Ottawa or Chicago. They were going to market. I have no means of knowing that. I would think it was about 1842 or 1843. It must have been pretty near that date. That is the only date I am guessing at, for when I left the county it was about 1850, '51 or '52; it was before that likely that this happened—two or three years, maybe more. It seems to me that the dam my father was building was on the south side of where the Jefferson street bridge is. Things change around so on the river and canal a person gets off the track.

Mr. McKee bought the land from my father. He finished the dam and put up the mill. It was called McKee's dam. I couldn't tell how deep the boat went into the water, only by the sides that showed out of the water. It was a flat boat. I don't think it was decked over, except a double flooring in it maybe six inches from the bottom to keep the goods off the bottom. If I remember right it didn't have any upper deck. That was not covered over. It didn't seem to me to be like a ferry boat exactly, that is, covered over the top.

Q. You said you never saw any other boat going up and down the river except skiffs, did you?

A. That is all I remember of. I was not on the river very much then. There wasn't many skiffs going up and down, only just what was used in Joliet for the purpose of crossing the stream. I didn't see, that I can swear to, freight or passengers being carried up or down the river.

The only thing I learned about the boat was that the grain got wet and the man who had it was selling it out because he couldn't take it on to market. On account of it being wet
15 it would spoil and not sell on the market. I learned that from my brother. He went down to the river and he met a man who had gotten some of the wheat, who told him the wheat was wet and there was a man on the river in a boat selling it out, so my brother went and bought some. I heard it talked in the neighborhood about it being too bad that the wheat got wet. My brother was about 20 or 21 years old when that happened. I was not so familiar with the Desplaines River in 1833 and 1834 as I was before that. I remember the Beard dam at Beardstown, across the river. I don't remember the date. It was about the time the feeder dam was put across the Kankakee. That was several years after my father was building the dam at Joliet. I don't remember Norman's dam. I don't remember any falls or anything that you
16 could call rapids between Joliet and the mouth of the river. There were some places not so deep and some places the water was pretty swift. I don't remember any rocks across the channel. It was a pretty smooth limestone bottom. Those fords I think they did aim to find, generally, just above riffles. I don't think there was much difference between the fords and the places below, not enough to do any hurt. I never went by boat down the river from Joliet to the mouth of the stream, not the full way; I have partly. I

remember the grist mill at Treat's Island. I couldn't tell you just where the place was that that boat was from which the wheat was sold. The people on that boat with the farming implements said they were going to a warmer country. That
17 was in the fall of the year. We raised grain on the farm at Reed's Grove. When we got to taking it any place we took it to Chicago by ox teams. We met other people. The roads were full of teams going and coming, some from Sangamon County, as far as 120 or 130 miles. I remember an old sailor along the road with me one day. He said "Do you ever drink?" I said "Yes, sometimes." He said "Well, we will have something to drink." We met an old fellow coming along cracking up his horses and he says "Here hello, give us a drink." He says "I haven't got any whiskey." Pretty soon we met another fellow. He says "I guess I have," so he stopped his team and we had a drink out of a jug. We were all jolly fellows at this time. It runs in my mind that that
18 boat with the grain came from the Bull Bony settlement (Bourbonnais Grove), a settlement on the Kankakee river. That was way up near Kankakee city. Kankakee is right where the Bull Bony settlement was then I think. I never used the river for transporting grain. I don't remember the Havens or Adams dam. I couldn't say when that bridge was built across the river where my father's dam was built. I remember one bridge was built and went off with high water along the first part of the settling there, but I couldn't give the dates as to the building of the bridges. Those people in that boat with the farming implements said they were hunting a warmer country. I suppose they went on down out of our reach.

Re-direct Examination.

Q. Was the water in the Desplaines river from Lockport to the mouth of the river at the time you lived at Joliet deep enough at all times and at all seasons of the year for boats drawing from three to four feet of water to navigate up and down the river without trouble?

Objected to by the defendant as calling for a conclusion.

A. Well, I would think it was, but I would not say that
19 it was at all seasons. I believe it was sufficient for boats drawing three feet of water during the most of the year.

Q. You base that conclusion from your knowledge of the depth of the water in the Desplaines river?

A. Yes, sir.

The fords I have spoken of we aimed to have at the shallowest places.

Re-cross Examination.

That is, if the shallowest place was very swift it might be that we could select a place not so swift just above. I can't say that that was the case in these instances. We endeavored to get the best bottom we could. In the extreme dry seasons I never remember having known it being so low as not to be 2 to 2½ feet deep in the shallowest places. I did not go up the river from Joliet afoot nor follow it in all its windings. I used to see it frequently. There might have been shallower places, but I don't think so.

Here follows stipulation to waive the signature of said witness.

DEPOSITION OF G. H. ERHARD.

The said G. H. Erhard was first duly sworn.

GEORGE H. ERHARD, a witness for complainant, testified as follows:

Direct Examination.

I am over 69 years old; live at Sherwin Junction, Cherokee County, Kansas. I was born in Joliet, Will County, Ill., on Nov. 22, '38. As a resident I know of the plaintiff, the People. I know of the defendant. I know of Mr. Allen, one of the parties connected with the defendant's business.

I resided at Joliet continuously until 1893, when I moved here. After living here three years I returned to Joliet and remained until '99, when I removed my residence here permanently.

I knew the Desplaines river since I was 7 years old. In 1845 I lived right on the bank of the river and went swimming and fishing very frequently in it; saw it every day up till 1860.

The Desplaines river had different stages called high and medium stages. In the high and medium stages of water any raft or boats could run up and down the river at any such seasons when the river was not frozen, I would say from Lamont down to Dresden Heights. This is as far as I know positively

that such rafts or boats could be propelled in the Des-
23 plaines river. During the years I lived on the Desplaines and saw it daily there were high and medium stages of water. It was generally high during the spring and fall seasons. I would say those high and medium stages would continue probably six months or more of the year and that the water was much higher before the year 1848 than thereafter as the same was impeded and pervented from the natural flow by dams and other obstructions, and the cultivation of the soil and tile drainage caused the water to escape faster and in a larger flow than before.

Before 1848 the stream was a good sized river and I have frequently seen cattle swim the river in the summer time across to Brushy Island and the entire stream at that time was quite deep. If we did not have a dry season we would have a good stage of water all summer, and generally there was three or four months in the latter part of the year that the high or medium stages continued to exist.

During the time I resided on the river I saw small boats and rafts going upon the river. The boats went up and down the river and the rafts went down the river. They came, so far as I know, from Lamont, Cook County, Illinois, and floated on the river to south of Joliet and to the Hayden saw mill. I frequently saw the boats and rafts come into the mill containing hardwood for manufacture. I often heard of merchandise being shipped on the river, but have no positive
24 knowledge of such transaction. I remember that my brother-in-law, Jacob Adler, of Joliet, fenced a pasture across the river and was compelled to put gates across the Desplaines just below the city limits of Joliet, and that in erecting such fence he was required to and did put in a swinging gate in order to let the boats and rafts go up and down the river. The river at that time was regarded as a navigable stream and used for such purposes and for that reason he was required to use swinging gates so that the boats could go up and down the river. I was often in the river swimming and was around it fishing and knew it well from Lamont down to where the Kankakee and Desplaines form the Illinois river, which was commonly known as the Channahon district.

Cross-Examination.

I think it was in 1847 or '48 that the upper dam was finished in Joliet. Then there was a dam right on Jefferson street.

That was there before my recollection, which was torn away a few years ago; the Haven's saw-mill and grist mill dam south of Joliet. I don't remember when that was built. I think that has been torn away also. It was built when I was a small boy.

I knew of there being some rapids or riffles in the Desplaines river near to the mouth at Dresden Heights. I don't know their length. It was a great fishing place. I saw them often.

25 I have been across the rapids at Smith's bridge. Am well acquainted with the country and rapids around Brandon's bridge. I have also been at the rapids at Treat's Island. I cannot state their extent; have no knowledge, could only guess. I cannot say just what the depth of the water was prior to 1900 over these rapids. I know that there was generally a good body of water in the river before they began to obstruct the river and drain the country.

I never attempted to run a skiff over those rapids either at high or low water mark. I have seen skiffs come up and down the river at nearly all seasons. I don't know where they came from or went to.

No, it is not true that the only boats ever used in the Desplaines river were skiffs used occasionally in pools or deep places by fishermen or hunters.

26 I never personally saw boats used for commercial purposes except carrying produce, grain or freight navigating the river, except I have seen the rafts come down the river as I have stated.

I am not able to say positively, but to the best of my judgment the curves, slopes and declivities in the river did not prevent vessels from going up and down the river when the same was at a high medium stage of water.

The high water stage would probably last a month each in the spring and fall, and the medium stage, I should judge, would last for about six months, and the remainder of the year, if it was a fair season, we would have a medium stage of water most of the year, but if it was extremely dry the water would get quite low, but as for the depth of these rapids at any time I am unable to state.

27 Here follows certificate of A. H. Skidmore, commissioner.

Deposition of GENERAL ALEXANDER McKENZIE, a witness for complainant, testified as follows:

Direct Examination.

28 I am 63 years and nine months old; residence Washington, D. C.; occupation, Brigadier General and Chief of Engineers, United States Army.

I have been in the service of the Government of the United States about forty-four years, not including the four years at West Point. I am a graduate of the West Point Military Academy, of 1864. My official position is Chief of Engineers, United States Army. I have not been in any other service in the United States Government, excepting the Engineer Corps.

I commenced my service in Arkansas and the Indian Territory during the latter part of the Civil War; subsequent to that, for a time, I was on duty in Washington, and later on the lower Mississippi. Following that I was on duty for a number of years in Milwaukee in connection with the improvement of certain lake harbors, and subsequently to that at Willett's Point for a number of years with the Battalion Engineers and School; later than that at Detroit and at Louisville, in charge of various river and harbor works; then at Rock Island for about 17 years, and from there to Washington, where

29 I have served for about thirteen years. During the seventeen years that I was stationed at Rock Island, Illinois, I have had under my jurisdiction the upper Mississippi river, which did not include directly the tributaries. The only improvement that I had under my charge at that time was the upper Mississippi river from St. Paul to the mouth of the Missouri river.

I have necessarily made a study during these many years of my service of the various rivers and harbors of the United States; principally I might say, though with regard to many of them, through the reports submitted by other officers. All these reports come to our Department for consideration from time to time.

I know the Desplaines river in Illinois, principally through the records and reports; not particularly, personally. I have seen it.

30 Q. State whether the Desplaines river is regarded by the War Department as a navigable stream.

Objected to by counsel for defendant; incompetent, irrelevant and immaterial.

A. It is regarded officially, as a navigable stream under the law.

Motion by counsel for defendant to strike out question and answer as not responsive.

As to what is the minimum depth or water in a stream on which profitable commercial navigation can be had,—can hardly be answered definitely, because there are other considerations besides the depth which might be involved. In certain streams a very small depth, even a depth of one foot can, furnish porfitable navigation, all other conditions favorable.

Q. Suppose that the boulders, if any, in a stream, be removed, and where rapids exist a lock and dam be put in, then what is the minimum depth under which or on which, profitable commercial navigation could be carried on?

Objection by counsel for defendant; incompetent, irrelevant and immaterial.

A. That could best be answered by giving such examples as we have. The plans now contemplate a six-foot navigation on the upper Mississippi river. Up to within a recent time they contemplated four to four and a half foot navigation, on which it was considered that a profitable navigation might be conducted, although that is a question of fact that could not be exactly predicted.

There are a number of rivers in the south, the upper waters of which have as little as two feet of water, upon which business is transacted.

The document now handed me, which is a record of Document numbered 264, of the Fifty-first Congress, first session, —House of Representatives Document, purporting to be a survey made by Captain W. L. Marshall of the Corps of Engineers, and transmitted by Redfield Proctor, Secretary of War, to the Speaker of the House of Representatives,—this is
31 an official document, published by the Government of the United States, and to the best of my knowledge and belief is a copy of the original document.

Q. Will you state what constitutes a navigable river, as the same is understood and acted upon by the War Department of the United States?

Objected to; incompetent, irrelevant and immaterial.

A. The consideration given by the War Department in a question of this kind is based on the decisions of the Supreme Court; their description of what constitutes a navigable stream is in general terms that a stream is navigable in law when it

is navigable in fact, and it is navigable in fact when it can be utilized for the commerce of the locality.

Q. If a river is obstructed in certain places rendering passage of boats impossible by means of rapids or boulders in the river state whether or not that fact destroys the navigability of a river?

Objected to; incompetent, irrelevant and immaterial; opinion as to law throws no light on issues of fact.

A. Obstructions in a river, as I understand the decision of the Supreme Court, which would not completely shut off all possible navigation, would not interfere with the navigability in law, inasmuch as the floating of logs or the floating of small boats which can frequently pass over rapids, is understood to constitute navigation. I understand that such river is still, under the law, considered a navigable water. I might add that the War Department has never officially considered it has any authority to declare a river unnavigable. The fact that the volume of water in a given river is such that it does not afford at all seasons of the year sufficient water for navigation does not destroy the navigable character of the river, according to the custom of considering the matter in the War Department.

32 The four volumes, on the back of which I find the words: "Report of the Chief of Engineers, United States Army, Volumes Numbered 1, 2, 3 and 4, 1884," are official documents, and to the best of my knowledge and belief copies of the original document.

The book now handed me, entitled: "Annual Report upon the improvements of the Harbors of Chicago and Calumet and Illinois and Calumet Rivers, Illinois; Location of Illinois and Mississippi Canal, and Operating and care of the Lagrange Lock in the Illinois River, in charge of W. L. Marshall, Captain, Corps of Engineers, United States Army, being appendix J. J. of the Annual Report of the Chief of Engineers for 1890," is an official document of the Government of the United States, and is to the best of my knowledge and belief a copy of the original document.

The document now handed me, entitled: "Executive Document Numbered 16, Fortieth Congress, first session, House of Representatives," purporting on its face to be a survey of the Illinois River—a letter from the Secretary of War communicating the report of Brevet Major General J. H. Wilson on the survey and examination of the Illinois River,

—is an official document of the Government of the United States, and is to the best of my knowledge and belief a copy of the orginal document.

The volume now handed me, on the back of which appears these words: "Survey of Waterway from Lake Michigan to the Illinois River at La Salle, Illinois," and apparently being a volume of maps,—is an official document of the United States, and to the best of my knowledge and belief a copy of the original document.

33 The volume now handed me entitled: "Document Numbered 263, Fifty-ninth Congress, first session, House of Representatives," purporting on its face to be "A Report upon Survey, with Plans and Estimates of Cost, for a Navigable Waterway 14 Feet Deep from Lockport, Illinois, by way of Desplaines and Illinois River, to the Mouth of said Illinois River, and thence by way of the Mississippi River to St. Louis, Missouri, and for a Navigable Waterway of 7 and 8 feet depth, respectively, from the Head of Navigation of Illinois River at La Salle, Illinois, through said River to Ottawa, Illinois,"— is an official document of the United States Government, and is to the best of my knowledge and belief a correct copy of the original.

The volume now handed me, purporting to be "Reports upon Transportation Routes to the Seaboard," being "Appendix C C of the Annual Report of the Chief of Engineers for 1875," is an official document of the United States, and is to the best of my knowledge and belief a copy of the original.

Cross-Examination.

I cannot state the points at which I personally saw the Desplaines river, and I can only say that I have seen it. I have not seen it sufficiently to know any of its details and peculiarities. My knowledge of the river, of its directions and slopes is from the Government reports and Engineer's reports. I have more or less familiarity with the slopes

34 of the river and the depth of water and flow in it. I could not give the figures definitely to you as to the slopes of the river between Joliet and the mouth. The slopes affect the question of navigability materially. That is it would for up stream navigation. Of course, there are streams where the navigation would be all one way, and so the question of slopes would not affect the legal proposition so much.

The limit of slope in fact for the purpose of navigation is a question of the current and the foundation and obstructions. There are so many conditions involved, that it is very difficult to answer. I have in mind special cases where boats do navigate certain currents under certain conditions, but it may be because there is plenty of water there for them to operate in, or some other conditions. They have on the Rock Island Rapids slopes which at times give an estimated current of seven miles per hour, which boats do operate on. There is also on the Falls of the Ohio,—I do not know what the slope is,—but they do operate boats in passing from one side of the river to the other, and navigate steep slopes.

Interrogatory 37th: Now one of these reports that Mr.
35 Reeves has that you identified, is the Engineer's Report made in 1901 to 1904, that is, I refer to the report published in 1905, of survey for a deep waterway; and I call your attention to the fact that in that report it is shown that during the low water season of 1901, the fall in the Desplaines river between Jackson street and McDonough street in the City of Joliet, a distance of 5,000 feet, a fall of nine feet in this five thousand feet, being a fall of 1.8 feet per thousand feet. Now, I ask you if it would be possible for open-water navigation upstream to be carried on for the purpose of commerce over that stretch of five thousand feet with that slope?

A. I could not say, except that boats do at times pull up on lines when the water is too steep to use their natural power. I mean, by putting out lines ahead and hauling up the boats by the process known as cordelling. I would not like to state the maximum slope on which that could be done.

Interrogatory 40th: I call your attention to the fact that this report to which I have referred says that in the high water season of 1902 and 1904 the slope in the Desplaines river, between Jackson and McDonough street was eight feet in four thousand feet, or about two feet per thousand feet, and ask you if you think it would be possible for purposes of useful commerce to navigate that portion of the river upstream, or downstream either?

36 A. Well, it would be undoubtedly difficult navigation, very difficult navigation under those conditions, but whether it would be successful or not is problematical, that is difficult navigation for steamboats and barges, and that class.

It can not be said that anything of that kind is impossible. It would be very difficult, even if it was a gradual slope.

Without any artificial aids, simply a boat steaming, I think it would be so difficult as to be virtually not successful.

Interrogatory 42: Would the fact that there never had been any navigation of that particular stretch of the Desplaines river have some weight with you in making up your opinion upon that point.

A. Well, I think it would with anyone.

I do not know as a fact that there has never been any navigation on the Desplaines river between Lockport and the mouth. I do not understand that there is navigation there, that is, only stating from memory. I understand that it is not navigated. It is the impression that I have from the reports. I haven't any definite information one way or the other. There are records in our office which say that at a very early day there was navigation on the river. I do
37 not remember exactly the date. It was in the early days.

Interrogatory 47: Are you aware of the fact that from a very early day the river has had some dams in it from its mouth to Lockport bridge, clear across the river, and which would be an effectual obstruction to navigation?

A. Yes, sir.

Interrogatory 48: I call your attention to the fact that this report, published in 1905, shows that between McDonough street, in the City of Joliet, and what is called Brandon's bridge, a distance of about two thousand feet, the slope in 1901, during a period of low water, was 3.75 feet for this two thousand feet, or being about 1.88 feet per thousand feet, and that in the high water season of 1902 and 1904 the slope for that same stretch of river was about 1.1 feet per thousand feet. Do you think it would be possible for navigation for useful purposes of commerce to be carried on without improvement of that river over that stretch of the river?

A. Under these same conditions upstream navigation would be undoubtedly very difficult.

I do not understand the Desplaines river to be navigable in fact in the sense as being actually navigated at this time.

As I said before, we have some records which indicate that it was at one time, at an early date, used by a certain class of boats. I may be able to refer to those records. I
38 do not remember how far those records go. I suppose that the kind of boats used were pole boats, or skiffs,

and boats of that character. The light in which we look at this is whether this river is navigable along the finding of the Supreme Court. We use our best judgment in coming to that conclusion. From the reports which we have, I should judge that the river is not capable to-day of conducting profitable commerce, in the way commerce is usually conducted now. Whether it has in the past, or whether there was a time when it was, or not, I could not say. When we speak of the navigability, I can only say that a river, which will float a log is to us a navigable river, and undoubtedly the Desplaines river is capable of such navigation.

I do not think it is capable of carrying commerce now; whether the time ever was that the commerce made it capable of being operated profitably I do not know. As to whether there are long stretches during several months of the year between Lockport and its mouth when the water is not
39 over twelve inches deep, I would not know without examing the record.

Interrogatory 59: Do you know as a matter of fact there are times in dry seasons when there is scarcely any water in stretches of the river?

A. I do not know that.

The Engineer's Report published in 1905 relates to the proposed improvement of that river with locks and dams in connection with the proposed fourteen-foot waterway. It was proposed as a part of the plan suggested that some locks and dams be placed in the Desplaines river.

The Economy Light & Power Company, or Mr. Charles A. Munroe, proposed to build a dam near the mouth of the Desplaines river and filed plans for his work in my office at one time. As a result of the presentation of those plans, which were simply presented for the purpose of seeing whether they were in harmony with the plans for the improvement of the river,—it resulted in Mr. Munroe being informed that under certain conditions they would harmonize with the plans for improving the river.

40 Interrogatory 64: Is not it a fact that those conditions were to be met by Mr. Munroe—that provisions should be made for a lock at the side of the dam, and that the Government should be given control of the pool to be formed by the dam?

A. Those conditions mentioned were a part of the conditions; I do not remember fully what they were.

As to rivers in the South, on which commercial business was transacted, I could not remember the rivers just now. I do not mean to say that there is not to exceed two feet at many places in the river, but there are shoals over which they pass.

Interrogatory 66: Well, on those rivers, as well as on many rivers, a question whether navigation could be carried on would depend upon the slope to a large extent, as well as upon the depth of water?

A. As I stated before there are so many conditions involved that it is difficult to answer.

Interrogatory 67: Well, if you had two feet of water in a river and a slope of ten feet per thousand feet, it would be impossible to carry on navigation, would it not, General?

41 A. As I said before, if there was an urgent necessity, there might be some way of carrying it on. I would not like to say that anything of that kind is possible.

Interrogatory 69: It would be impossible, would it not under navigation as it is carried on generally now,—it would be impossible with the character of the boats that are now used?

A. We have many cases of streams, which in my Department are classed as navigable streams, where there is nothing but log navigation.

I do not recall the slope of the river between Lockport and its mouth, as shown by Major Marshall's report, published in 1888, before the water from Lake Michigan was emptied into the Desplaines river. I have not the thought of it in my mind.

42 I cannot give any information as to whether before the water of Lake Michigan was turned into the Drainage Canal, the river could ever have been used for purposes of commerce.

There was great difficulty in navigating the Rock Island Rapids at one time. Improvements have been going on there for over thirty years. They have been removing rocks and making channels, and now they have built a lock at the lower end of the Rapids. As to whether I really recall that the total fall of those rapids was 21½ feet in 14½ miles—about 18 inches per mile or about 4 inches per thousand feet will say those Rapids are not continuous, they are simply a series of long pools, connected by rapids, so that the fall there is concentrated in a number of places.

S. T. Abert was United States Civil Engineer on duty with the Engineer Department. I could not say without referring to the records whether he recommended at one time the improvement of the Yadkin river in North Carolina. It is my impression that there has been work done on said river by the Government, but what improvement has been made I could not state off hand. I do not recall any of the data about this river.

43 Major E. R. Ruffner, now Colonel, is an Engineer Officer in the United States Army. I do not recall that he made a record of his opinion to the effect that the limit of slope for open river navigation is about 18 inches to the mile. Colonel Ruffner is still a member of the Corps of Engineers, stationed at New Orleans.

I could not tell whether the Yadkin river is now used for purposes of commerce. The reports of the Chief of Engineers will show.

Q. You expressed the opinion, did you not, to Secretary Taft last year that the Desplaines river was not navigable in fact and that consequently, the Secretary of War had no jurisdiction over it?

A. That was I presume in connection with a hearing that the Secretary had in regard to that river. I do not remember that I fully expressed the question of the navigability under the law. That was not the principal question involved at that time. That hearing, in a general way, was a protest on the part of Mr. Isham Randolph against the proposed construction of a dam by the Economy Light & Power Company at Dresden Heights. As I recollect, it was an informal presentation by persons representing the State of Illinois against the state being deprived of certain rights and authority in connection with the water power connected with the fourteen-foot waterway.

44 Well, I will say, the statements made at that hearing that the river was not navigable in fact, was my general thought as to the present condition, and was not made exactly in relation to the actual legal conditions. As I recollect in that matter, the Secretary in his finding, which was an impromptu matter, made a reference to the fact, of non-navigability, but that was based principally on the presentation made by Mr. Snapp, and the fact (the Secretary did not have to decide whether it was navigable or not). That was not a part of the decision.

Referring to these answers, as I have said, our Bureau of the War Department would not consider that they had any right to decide that a river was unnavigable in law. The only way in which such a matter comes before us is where permits are asked for, and then the Secretary has to determine the question, and he will naturally determine on the safe side.

In a general way, the policy of my department is to
45 consider all rivers navigable that could be improved and made navigable, where there is a prospect of their becoming a useful line of navigation according to the present day methods.

Re-direct Examination.

The surveys that are made of the different rivers and harbors of the United States by officers of the Engineer Corps, are all reported to the Chief of Engineers, and by him reported to the Secretary of War, and by him transmitted to the Congress. The War Department determines whether or not a river shall be regarded as navigable or otherwise, from whatever information may be available, and to a large extent from the reports above mentioned.

The War Department, of course, obtains a great many reports that do not go beyond the office of the Chief of Engineers. Where we find a slope in the river creating a current too rapid to be navigated, it is naturally not a good river; it is still a river subject to improvement. The way a place of that kind is treated, is by putting a lock in the stream, or in other cases, by cutting out a channel or smoothing it. Both methods are used. Well, the river, I should think, would still be considered a navigable river, even if there were occasional places where navigation was quite difficult.

46 The statement that in order to accommodate navigation and make navigation easier and better the rivers have been improved by the state or general government applies to a very large number of them. Take the Mississippi river, as that is important. It was necessary to put a lock and dam in it. The necessity for this lock and dam, as in the illustration just given, does not at all detract from the fact of the navigable character of the river. In the case that I mentioned above these rapids, it was originally navigated by a special boat.

In my reference to the early navigation on the Desplaines

river, that was a very general statement I made, and not connected with the subject of cordeling. I simply stated that I have knowledge of that way of handling boats. In early days there was no way of transportation hardly except by water. In the matter of cordeling, that is applied to either small or large boats. I remember the case of the expedition up the Yellowstone river a great many years ago, in which they pulled the boats up for miles.

I recall that there was a survey and report made by
47 Major Long about the year 1819 of the Desplaines river and transmitted to the Congress by John C. Calhoun, Secretary of War, in which the Desplaines river was reported as a navigable river, and advice was given as to how, by slight improvements, it could be made a great waterway for commerce; but I have not seen it for years. I do not recall the details.

In the Upper Savannah river, I know there were used what they called push boats on the upper portions of that river, which to-day would be considered almost useless for commerce. There is evidence that such boats propelled by poles, did carry cotton.

The Santee river is one of the rivers I had in mind when I mentioned some of the southern rivers, whose depth of water was two feet or less. The same condition is true of the Upper Tennessee river. I would not give the depths, but it is true it is a shoal stream. There are a number of cases of rivers of that sort in the southern states, that are now
48 being navigated for navigation purposes, where the water is less than two feet.

In regard to the hearing before Secretary Taft in February, 1907, according to my recollection, the statements with regard to the navigability of the river and the connection of the government with it, were made by Congressman Snapp. I do not remember anyone else, and they were probably adopted, except by the Secretary of War.

Re-cross Examination.

The only record made with regard to the navigability of the river, was when the question was asked the department. According to my recollection it was asked by the Attorney General of the State of Illinois, and it was simply up to us to give an answer, and we recommended to the Secretary of War

that he answer that the river was navigabe. As to whether he meant by that that the river was capable at the present time of being used for carrying commerce, we did not mean to go any further than we did, we simply had to give an answer to the question asked.

49 I knew there were dams on the Desplaines river. In considering the question of the navigability of a river, we are not influenced by the existence of dams which were put in without permission. No permission was obtained from the Government for the construction of any of those dams. No protest was ever made so far as I know by the Government against the construction or maintenance of those dams. My department has been aware of the existence of dams in that river for a great many years. All those dams we knew were obstructions to any possible navigation of the river.

Interrogatory 113th: Just to be perfectly clear about that hearing that was had before the Secretary of War in February, 1907, I hold in my hand what purports to be a copy of the proceedings had upon that hearing, and I ask you, General, if the following interrogatories and answers did not take place between you and the Secretary of War:

Secretary Taft: As a matter of fact it is not now navigable (referring to the Desplaines River).

General Mackenzie: It is not now navigable.

Secretary Taft: And if they sunk a 14-ft. channel in the river and affected private interests they would have to buy them, woud they not?

General Mackenzie: Yes. As Mr. Snapp says, these plans were brought here to the War Department. They

50 were looked over and compared, and the War Department wrote a letter stating that if they satisfied certain conditions they would be in accord with the plans proposed by the Board of Engineers for the 14-ft. waterway. I have a copy of the letter.

Secretary Taft: But you are not seeking to exercise any authority over an existing navigable stream?

General Mackenzie: No, sir.

Secretary Taft: Or to grant a permit so as to protect the interests of the United States in the stream?

General Mackenzie: No, sir.

Secretary Taft: Suppose they were to go ahead without coming here at all. You could not go into court, or could not, by an order of this department, prevent them from doing anything, could you?

General Mackenzie: I do not think we could. Of course, under all the conditions, so far as they have gone, possibly we could call the attention of the Department of Justice to the matter, simply to have them consider it as a legal proposition.

Secretary Taft: Where would the Department of Justice get any power?

General Mackenzie: Only from the general law—that in case of any violation of any law for the protection of navigable streams.

Secretary Taft: Yes, but the Desplaines River is not a navigable stream, is it?

General Mackenzie: It is not, today, sir.

Secretary Taft: And it could not become so except by a declaration of Congress to carry work on it?

General Mackenzie: That is it exactly.

Secretary Taft: Then where do I get any power to
51 deal with it at all?

General Mackenzie: I do not know that there is any, Mr. Secretary.

Were those questions and answers given at that hearing before Secretary Taft, as I have read them?

COUNSEL FOR COMPLAINANT. I object to this as being no part of the cross-examination and immaterial in this cause.

A. I suppose, essentially so, but the explanation must go with this, with the fact that there was no question of a permit. There was no question as to the legal status of it, and there was no necessity for the Government to exercise the power of stopping anything. All they could do was to report it to the Department of Justice, which would consider the law in the matter.

Interrogatory 115: I would like to get this thing clear, General, so that I can understand it thoroughly. I gather that your opinion and position in the matter is this; that as a legal question, whether the river is navigable in law, or whether the United States has any right to regulate it, is a question that you cannot pass upon, and not intending to express any opinion except the United States and your department consider all rivers navigable until somebody proves them otherwise?

COUNSEL FOR COMPLAINANT. To that I object, as a statement not warranted by what the witness said.

COUNSEL FOR DEFENDANT. Do I state your position fairly, General?

A. Essentially, yes. We do take that view on the ground that there is no authority outside of Congress and the court that can declare a river navigable.

Interrogatory 116: So, on the other hand, you do not mean to say that when your department states this is a navigable river, it does not say that useful commerce can be carried on that river with improvement?

A. We do not pretend to answer that question.

Interrogatory 117: You do not pretend to say this; that commerce can be carried on without improvement of the river?

A. I do not pretend to make a statement in that connection. We consider it navigable in law. We do not consider it navigable in fact. (See answer to No. 49.)

Re-re-direct Examination.

52 The inquiry by the Attorney General of the State of Illinois as to whether or not the Desplaines River was a navigable river, was about the 21st day of October, 1907.

The document now handed to me is the answer of the War Department to that inquiry from Attorney General Stead. The suggestion that that answer be given to the Attorney General was made from our office.

Thereupon the letter, identified by General Mackenzie, dated "War Department, Washington, D. C., October 28, 1907," addressed to the Hon. W. H. Stead, Attorney General, State of Illinois, Springfield, Illinois, and signed by Robert Shaw Oliver, Acting—Secretary of War,—was received in evidence and marked "Exhibit A." (Abst., 181.)

Objected to as being incompetent, irrelevant and immaterial, and the following stipulation was entered into between counsel:

"It is agreed between the parties that a carbon copy of a letter, dated October 21, 1907, purporting to be a letter addressed to Hon. William H. Taft, Secretary of War, Washington, D. C., and signed W. H. Stead, Attorney General, is a true copy of the letter to which 'Exhibit A' is a reply, and that said carbon copy is hereto attached marked 'Exhibit B.'" (Abst., ...)

53 *Re-re-cross Examination.*

There is a record in my department in regard to some action relating to Charles A. Munroe.

To the best of my recollection, nothing has ever come to the department from this Economy Light & Power Company.

There is no application for the approval of the plans to the best of my recollection. The question presented by Mr. Munroe was whether the plan submitted would be in harmony with the work of improvement proposed by the Government.

55 "EXHIBIT A."

John P. McMahon,
Notary Public, D. C.

WAR DEPARTMENT.
WASHINGTON.

October 28, 1907.

Dear Sir:

Answering your letter of the 21st instant, in which you ask to be informed whether the Des Plaines and Illinois Rivers are navigable between Lockport and Utica; also whether the War Department has been called upon to pass upon the right of the Economy Light and Power Company of Joliet, Illinois, to dam the former river, I beg to inform you that the Des Plaines and Illinois Rivers at points mentioned in your communication are considered by the War Department to be navigable streams.

There appears to be no record in the Department of any action relating to the Economy and Power Company of Joliet.

Very respectfully,

ROBERT SHAW OLIVER,
Acting Secretary of War.

Hon. W. H. Stead,
Attorney General,
State of Illinois,
Springfield, Ill.

54 "EXHIBIT B."

"JOHN B. MCMAHON,
NOTARY PUBLIC, D. C.
B—III.

October 21, 1907.

Hon. William H. Taft,
Secretary of War,
Washington, D. C.

Dear Sir:

A question has arisen in this department involving the proposition whether or not the Illinois and Des Plaines Rivers between Lockport on the Des Plaines and the village of Utica on the Illinois are navigable rivers. Will you kindly advise me if the Department of War has been called upon to pass upon the question as to whether or not said rivers are navigable rivers of the United States, and particularly if the Department has passed upon the question as to the right of the Economy Light and Power Company of Joliet, Illinois, to construct a dam across the Des Plaines river just above the mouth of the Kankakee river. If your Department has passed upon and determined the question as to the navigability of those streams or of either of them, I wish you would send me a certified copy of the finding of your Department. The cost of such certified copy, or copies, will be promptly remitted upon receipt of a bill therefor.

Very respectfully,
W. H. STEAD,
Attorney General.

L.—4.

56 THEODORE E. BURTON, a witness for complainant, testified as follows:

Direct Examination.

My age is 56 years; legal residence, Cleveland, Ohio; by occupation attorney, though I have been here now for quite a considerable time. By here, I mean, Washington City.

I am a member of Congress; I have been a member of

Congress consecutively since 1895, and also from 1889 to 1891. Since 1895 I have been assigned to the River and Harbor Committee, and have been chairman of that committee since December, 1898. I have made a study of the rivers and harbors of the United States necessarily in connection with my position. Well, of course in the preparation of river and harbor bills and hearings, and considerable amount of attention here at Washington, and then I have visited most of the leading rivers of the United States and a considerable number of the minor streams. I do not know how much time I have occupied in that—quite a number of months probably; that is, I have occupied in visiting.

57 I was in Europe for four months at one time, investigating river navigation and have given some slight attention at other times. I went to Europe especially to study water transportation and things of that kind. I have been identified for about a year past with the Inland Waterways Commission, appointed by the President, consisting of nine members. I was Chairman of the Commission, made so by direction of the President of the United States, and . . by the formal confirmation of the members. In pursuance of that appointment I have made a considerable study and some examination of rivers and harbors and means of transportation in the United States. The examination, however, was over waterways which I had already visited.

They would include a pretty large list of rivers: The Penobscot, Merrimac, Hudson, Delaware, Patabsco and James, the Inland Water Route on the east side of North Carolina, the Congaree, Santee and Wateree in South Carolina, the Savannah, the St. Johns, the Alabama, the Coosa, the Black Warrior, the Warrior, the Tennessee, the Cumberland, the Atchafalaya, the Sabine, the Neches, the Trinity, the Brazos; and, of course, the larger rivers, the Ohio and the Mississippi; and on the Pacific Coast, the San Joaquin, and the Sacramento, the Columbia and the Snake.

58 I have visited these different rivers with a view to their examination and study with reference to their improvement by the Government, and for a study of the general problems. There are some minor rivers which I have visited and which I have not mentioned in the list just given.

I have seen the Desplaines River in Illinois, though I have never been on a boat on it. I have seen it at a place where

the Drainage Canal empties its water into the river, and upon a course where it parallels the Drainage Canal, though that is the diverted channel—the artificial channel alongside.

Q. State what constitutes a navigable river?

Objected to, incompetent, irrelevant and immaterial.

A. Of course, there are a number of definitions that you can find in a legal dictionary, but really defined it is a river which can be utilized for the profitable transportation of commodities of commerce by boats or otherwise. I do not think you can fix any standard as to what volume of commerce would be necessary to have on a river to constitute it a navigable stream.

In 1902 I prepared a list of the rivers in the country, which carry respectively less than 50,000 tons, and less than 100,000 tons, or a traffic worth less than one million dollars—and this is perhaps wandering a little—made a comparison with minor railroads. There are some streams that are under improvement and profitably navigated that do not carry more than ten thousand tons a year, or even less.

As to whether a river, which was capable of floating a boat that would carry a bigger load of freight than could successfully be hauled by wagon, was navigable,—depends somewhat upon the topography of the country and the course. Generally speaking, I would say that the capability for carrying a load in competition with other available means of carriage would render the navigation of a river profitable, whether by wagon or in any other way. You can even conceive of competition by carrying on the back, as they do on the road from Vera Cruz to Mexico. This is the best known road in the new world, and for a part of the way, it is impossible to go with teams. That would be an extreme case,—where navigation competes with carriage other than by vehicles.

59

Q. Is it necessary for a river to be capable of being navigated by boats carrying freight for commercial purposes the entire year in order that it shall be regarded as a navigable river?

Objected to, incompetent, irrelevant and immaterial, and asks opinion of witness on a legal question.

A. No.

Q. It is necessary for a river to be navigable through its length in order to be a navigable waterway?

Same objection.

A. No; partly because detached reaches may be available for navigation and the obstacles may be removed; partly because you must take a river as an entirety, and in maintaining the regimen or the flow it is necessary to control the whole river, including those portions in which there are obstacles by reason of rapids, as well as those portions where the slope of the river is such as to render the navigation of the river difficult or impossible.

If obstructions appear in parts of a river by means of boulders in the water, or rapids in the river, do those facts destroy the navigable character of the river?

Same objection.

A. No; particularly because capability is a test, rather than actual use, and partly for the reason I have already stated, that you must take the river as a whole; and for securing the proper flow in those sections which are navigable without improvement, you must also take into account and have control over the portions which are not navigable without treatment.

60 The Columbia River is a navigable river. There is a portion of that river, relatively midway in its navigable part, called "The Dalles," through which boats do not pretend to pass. There is another obstacle between "The Dalles" and the mouth of the Willamette, and then at Priest Rapids and a number of other places there are obstacles in the way of rapids. Obstacles such as the ones just mentioned do not take from a river its navigable character.

As to what is the minimum amount of water depth that I know to be navigated in the United States for profitable commercial navigation,—that is a question which is somewhat difficult to answer, because the statistics as to most of the rivers are for low-water depth. Rivers are profitably navigated at a depth of 20 inches, or even less. Perhaps I had better qualify that statement,—on a draft of 20 inches or even less.

Well, there is the Tar River, the portion of it in North Carolina, that has only 20 inches. Then on the rivers in the cotton country, between the Mississippi and the Atlantic, there are boats which carry cotton and other commodities profitably on a draft say of sixteen inches, though the rivers at certain seasons have greater depth and the boats can draw more than that. Take for instance the Ocmulgee, the Oconee, the Coosa, the Alabama. There is a river in the State of Dela-

ware known as Smyrna River, the original depth of which was 2½ feet. It has now been deepened until it is considerably more than that. There is a large number of three to four-ft. rivers were profitable navigation is conducted. Of these a very large list could be given. The Tennessee,
61 from Chattanooga to Knoxville, at times does not have a depth of more than eighteen inches, and boats occasionally are used on that river on a draft of not more than eighteen or even sixteen inches. Of course, the Ocmulgee and Oconee, at certain seasons of the year, have a greater depth than that; most of the year they have a greater depth than I have named, but boats are used on them with only that draft. The projected depth of these two is three feet each.

Interrogatory 32: From the study and investigation that you have had of rivers and the knowledge you have of the Desplaines River in Illinois, state whether that is a navigable stream.

COUNSEL FOR DEFENDANT. I object to that.

Interrogatory 33: If the Desplaines River, for a period of three or four months in a year, exclusive of the time it is frozen over, contains a depth of water ranging from eighteen inches to ten feet in depth, and the river ranging in width during these times at from sixty feet to a quarter of a mile, without reference for the moment to the question of slope, would you characterize that, or say that it is a navigable river?

COUNSEL FOR DEFENDANT. To that question I object on the ground of its being irrelevant, incompetent and immaterial, and on the ground that not sufficient facts have been stated in the hypothetical question upon which a proper answer can be made.

A. Well, I take the question as this: A minimum depth of eighteen inches for at least three months of the year, and a width varying from sixty feet to a quarter of a mile. I would say it is navigable.

Interrogatory 34: If in the Desplaines River there are rapids in places, and boulders or stone on the rapids, would that fact take the river out of the list of navigable rivers?

A. Not necessarily. It would depend somewhat upon what share of the river was made up of rapids and what share of channel, with a slope not too great for convenient navigation.

The method of treating or improving a river where
62 there are stones or boulders in the river's course is, well, there are quite a number of ways; one is to take out the

rocks or the obstacles. That, however, frequently lets out the pool above, and while it does away with the rapids at the obstruction created by the rocks, it diminishes the level of the river in a portion that is navigable. Of course, if it is a mere detached rock, the way is to pick it out, blast it, or remove it in some other way; another is by the construction of what are called "wing dams" going out at right angles to the bank at the side to narrow the channel of the river. That does not necessarily overcome the rapids. Still another way and the one that is most effective, is the construction of locks and dams. I would say that the improvements of such rivers as have been improved have rendered them more valuable as navigable streams. Of course there are a great many rivers which have not been improved by the United States Government. If you take all the streams which are styled rivers, a majority of them have not been improved. Nearly all the rivers of the United States that are actually being navigated, have been improved in one or more of the methods I have suggested. I did not state I should say here, all the methods of improvement. Other ways of improving are by wing dams, longitudinal dams and dredging. These are the principal means employed. Of course, where it is a great alluvial stream, the protection by revetment to prevent the washing out and where there are great floods, levees or other methods. The matter of improvements of rivers and harbors by the Government of the United States, that is to say, the question of whether they should be improved or not, is a question that is primarily submitted to the Committee of the House of Representatives, of which I am the Chairman.

63 *Cross-Examination.*

Interrogatory 39th: Mr. Burton, you define a navigable river as one which could be used for profitable commerce in competition with other means of transportation. Suppose a river cannot be used for profitable commerce in competition with other means of transportation unless improved largely throughout its length, would you consider that to be a navigable river?

A. I would consider that navigable.

In actual practice I should say you will hardly ever find such a stream. A river will be navigable in a certain portion

of it, say 4 miles here, then there is an obstacle; then 2 miles, then there is another obstacle. Now, these separate stretches or reaches of the river can no doubt be navigated, and that makes it a navigable stream; but I would make the definition broad enough to include a stream which can be rendered navigable by improvement. It is hard to say whether it is a legal proposition. My experience has been so combined, so made up of study of actual physical conditions of the rivers, their navigability, the uses to which they are applied, with the legal proposition, it is pretty difficult to say whether I regard that as a legal proposition or a question of fact. Under my definition all streams are not practically navigable streams; unless it promises returns for the money invested in its improvement, I should not say that river was a navigable one. It is true that is a practical view to take of it. But if a river is all cut up with rapids, and where the expense of treating it and capitalizing would more than counterbalance any benefit derived from the use of it, I would question whether that should be regarded as a navigable stream. You must take into account that I look upon it from the standpoint of the benefits derived from improvement, the expense and difficulty of improvement.

64 Interrogatory 43rd: Well, suppose the Desplaines River, of which Mr. Reeves has asked you, is 18 miles long from Lockport to its mouth, and that it would take at least three locks and dams to make that river capable of navigation, actual navigation, with heights of eighteen, twenty-one and twelve feet, lifts at the locks, that river having a fall in those eighteen miles of about sixty-six feet, being an average of about four feet per mile, and the river being paralleled by the Illinois and Michigan Canal, used for purposes of transportation and by three trunk railways, would you say that was a navigable stream?

A. What is the depth of pools that would be created?

COUNSEL FOR DEFENDANT. That would be somewhere between twelve and fourteen feet.

A. I would say that would be navigable, most certainly. I think it would be profitable to do that work for the purpose of navigation. There are rivers in France, I do not recall the names just now, where there are locks every half mile. You must bear in mind that on so comparatively a short stretch as that, that difficulty of handling at the beginning and the end of the railway, and of the maintenance

of a canal—canals can never be made equal to a natural stream unless you make them abnormally wide—would cut a very considerable figure, and navigation would be a profitable means of transportation. Of course the rate on a railroad would be very much higher per ton mile for such a distance than it would be on a river—both the actual rate charged and the actual expense. Whether or not this river in its natural state or in its present state, is capable of navigation for the purposes of useful commerce, would depend somewhat
65 on the slope and the length of the pools which are not impeded by rapids. It has not been stated how long those pools are. The facts have not been sufficiently stated to me to express any opinion as to whether the river is, or is not navigable; I would say if there were three obstacles in a distance of eighteen miles, it would depend on the length of the rapids, or extent of the obstacles at those places, but there would be, at any rate, navigation on the detached portions, if the obstructions by rapids or other obstacles, are not unusually long. It would be capable of navigation over the portions where the obstacles do not prevent. An ordinary rapid is not an inseparable prevention to navigation. The rule as laid down in the text books of seventy-five years ago, was that about 1¼ ft. per mile was the maximum consistent with convenient navigation, but since then methods have been devised to overcome rapids. Take it at the iron gates of the Danube—there the descent is considerably more than that. Just above the boundary line of Hungaria and Roumania, Servia being on the opposite side, Hungaria taking the responsibility and taking the lead, they have a fixed post and a drum on the boat, and wire rope that hauls the boat by power in itself over the rapids. The slope of those rapids in places must be 4 ft. or more to the mile. I think I am conservatvie in stating that.

66 As to this Desplaines River, my impression is for the whole river, a descent of 100 ft. in 60 miles.

Interrogatory 53rd: Now, Mr. Burton, assuming that between Jackson street and McDonough street in the City of Joliet, a distance of about 5,000 feet, nearly a mile, there is a fall of 9 ft., or about 1.8 ft. per 1,000 ft., during the low water season, and during high water season, there is a fall of about 2 ft. per 1,000 ft. Now, on 18 inches of water, which was the minimum depth given in the hypothetical question that Mr. Reeves asked you—do you say that boats carrying

commerce could navigate up and down that stretch of one mile without the improvement of it?

A. I do not think so, if it is say only 18 inches deep.

Interrogatory 54th: Well, suppose it was 2 feet.

A. I do not think so. That however would not take away the quality of the stream.

Whether the boats could be navigated up the stream as it now exists, well, it would be very difficult, if not impossible. I have come so to consider the legal question and the practical questions together, that it is pretty difficult to separate the two.

Interrogatory 56th: Now, below McDonough street in Joliet, and between that and Brandon's Bridge, assume that there is a fall for a distance of 2,000 ft., of 3.75 ft., or about 1.88 ft. per 1,000 ft., during low water, and that during high water, the fall for the same stretch of river is about 1.1 per 1,000 ft.; this being a stretch of river just below the 5,000 ft. stretch that I have already asked you about, would you say that if there was from 18 inches to 2 ft. or 3 ft. of water, that it would be possible to navigate boats used for commerce up that stretch of river?

A. It would probably be possible, but not practicable without treatment of some kind.

67 Interrogatory 57th: Now, assuming Mr. Burton, that from Lockport to Brandon's Bridge, a distance of about 7 miles in those 18 miles of river, there is a fall of 34 ft. of continuous descent; and assuming now that a dam which is called dam number 1 existed there, and will be removed, and there will be a continuous descent of 34 ft. in a distance of 7 miles, or about 5 ft. per mile, do you think it would be possible, with the water from 18 inches to 2 ft. in depth, to navigate that stretch of the river for the purpose of useful commerce, without any improvement?

A. It would be very doubtful. It could be navigated by devices which could be employed if the stream is fairly straight without treatment of the channel.

If there is a sharp bend in the stream that would be a serious obstacle, it would depend of course, upon the width of the channel and the depth of the channel. It is very likely that the channel would be deeper or shallower around the bend.

Interrogatory 59th: Well, now, I will ask you another hypothetical question. There is a fall between Lockport and Bran-

don's Bridge, a distance of 7 miles, of 34 ft. or about 5 ft. per mile. Then, there is about 5,000 ft. between Jackson street and McDonough street, with a 9 foot fall in that 5,000 ft. Then from McDonough street to Brandon's Bridge, there is a fall of 3.75 ft. per 2,000 ft. Then a little below that, along Treat's Island, for a stretch of 2,000 ft., there is a fall of 5.5 ft. A little below that at a point called Smith's Bridge, for a stretch of 3,000 ft., there is a fall of 2 ft., and a few miles below that, at Dresden Heights, where this dam of the Economy Light & Power Company's dam is in process of construction, for a stretch of 2,000 ft., there is a fall of 3.2 ft. Now, with these falls, what do you say as to the capability of that river being navigated, in its present state, from the mouth to Lockport, for the purpose of useful com-
68 merce?

A. Well, it would be very questionable whether it would be navigated for that whole distance. If I may express an opinion, that would not take away the quality of the stream as a navigable stream, if part of the way there are pools that are readily navigable, and there is a terminal point beyond the end of the pool that by treatment could be made navigable—it is still a navigable stream for the whole distance.

I mean the Federal Government would have jurisdiction over it, particularly because it would be necessary to control that upper portion to make sure that the water flowed without obstruction through the lower portion. It seems to me this is a question of fact, as well as one of law. That is, it would readily appear that if the jurisdiction, which has control of the navigability, did not have supervision over this season, from which the water means comes to furnish the normal depth below, the jurisdiction would be futile. You presented several propositions relating to different portions of the streams, different conditions in this different reaches, that are widely different. On some of them I would say that it is difficult, if not impossible, for a boat to go up without in some way improving the stream, and on others not so difficult. It would not be so difficult to go down, but that also would be difficult, and in some places probably impossible, consistent with safety.

The limit of slope for the purposes of useful naviga-
69 tion would depend on two or three things; first, the depth of the stream; second, the width; third, the course of the

river, that is, whether straight or crooked. I have not the exact figures in mind, but I think on a slope as much as 8 or 10 feet, boats are drawn-up stream by those devices which I have suggested,—some point to which a rope or chain can be attached and a drum with power on the boat. Well, the Elba is one river in which the above method is tried as much as any. There the depth at low water seasons is not very great, I should say about 3 feet. I don't think it is a fact that there are 407 miles of chain in the Elba River, and that those chains are now being used where the slope is as flat as 1 foot in 3,300 feet. It is not a very difficult task to go up a slope which is only a foot to a mile. I am very familiar with Vernon Harcourt's book on the "Rivers and Channels of Europe." It is a very good book, although not always accurate. I was misled by it in an address made before the Geological Society last winter. I made an error by relying on the statements of this book relating to the size of the river basins of the world. I have not the exact figures in mind, but there are some very steep slopes in the
70 Rhone River. I am not positive as to the slopes of those European rivers, but I am quite positive that 4 foot slopes can be used for navigable purposes, for open water navigation treated perhaps by lateral dams or dikes. These, however, increase the difficulty unless they are located at a place just at the point where the flow of the river is more smooth without so much descent. As to the slopes of the southern rivers, well, take part of the middle section of the Tennessee, that is 2.75 feet in the mile. The fall from Knoxville to Chattanooga is on the average about one foot to the mile, though in some places it is very materially more than that. I should think the maximum slope where there is a navigation in those rivers, would not be greater than 4 feet. Take the Allegheny—that has 2.2 feet over long distance, and in some places more and in some places less, of course 2 to 3 feet to the mile. In the upper portion of the Monongahela, that is, that portion that is in West Virginia, it is about 2 feet. That is the average descent of course. There, as in the other case, there is sometimes more and sometimes less.

As to knowing any river where navigation is actually
71 carried on and where the slope is more than 4 feet to the mile, why for down stream navigation, the St. Lawrence at the rapids must be more than that. I am not positive, however, as to the figures. In some portions of the Ten-

nessee, between Chattanooga and Riverton, it must be more than 4 feet at different stretches of water. Commerce is carried on up-stream to no great extent in the St. Lawrence. They go down through the open river with some boats, and go up through a canal. I think there are records that give the exact slopes there of those European rivers. I do not recall them, however. I have not studied any of them.

Interrogatory 72nd: Assuming that in the Desplaines river, from Lockport to its mouth, a distance of about 18 miles, there is one pool of water about 5 1/2 miles in length, and another pool about 3 miles in length, making altogether about 9 1/2 miles of pool, and that the remainder of the river between Lockport and its mouth, about 9 miles, consists of stretches, of rapids, of slopes, that I have mentioned here, do you say that that river, in its present state, without improvement, is capable of being used for profitable commerce?

A. It is pretty hard to answer that question, yes or no. If you say for the whole stretch of the river, I would say "no." If you say for those portions, I would say "yes," and would add that the navigating of those portions gives a character to the whole.

I should take it it would be impossible to run a boat from one end to the other over rapids that are so steep.

Interrogatory 74th: Particularly in view of the fact that some of these rapids to which I have called your attention, extend 2 or 3 miles in length; for instance, the rapids from Jackson street to Brandon's road is a little over 3 miles.

A. The rapids are 3 miles in length?

Interrogatory 75th: That is, in the first 5,000 feet, the descent is 9 feet, then comes a stretch of 2,000 feet where the descent is 3.75 feet; then comes another stretch where the descent is 5.5 feet for 2,000 feet. That would be over 10 feet per mile—11 feet per mile. And then comes another stretch of 3,000 feet, where the descent is 2 feet for the 3,000 feet.

A. Well, if the stream were without obstacles, was fairly straight, that would not do away with the possibility of
72 going through it with boats. The other portions that you mention as 11 feet, I should think would not be navigable with any device now in use.

The portion 6.9 feet to the mile, would be difficult, if not impossible. As to 8 feet to the mile, you are getting down there I think to the limit, of course there is very rarely a stream where for miles the descent is uniform. You take it

where it is 8 feet to the mile, probably in a portion of it it will be at a rate that you call it; at another as much as 12, and in another probably 6. Well, suppose a stretch of a mile or 1/2 mile in the river, that is probably uniform of 8 feet to the mile; to carry on useful commerce would be expensive, but if there is a part of the stream which above the pool could be readily navigated, that would not in my opinion take away the navigability of the stream. I must say in this connection I had not considered the exact feature, the slope up which and down which boats go. It would be rather interesting to look up those figures, because the conditions are so different in different places. I should hesitate to venture an opinion as to whether boats could be taken up and down the Desplaines river, as it now exists, without more complete details as to the depth, width and general nature of the channel. I am of course limiting my answers to the portions which you describe, in which the descent is so sharp. As to whether the Desplaines river has ever in fact been navigated, I could not say that I had any information that is accurate that it has been. I had always understood, however,

it had been used for purposes of navigation—some old
73 narrative about a portage across there from Lake Michigan, connecting with the Desplaines and going down it. I was not aware there had been as many as nine dams in that stretch of the river during the last forty-five or fifty years. That would seem to show that that was an industrial center before Chicago was.

Interrogatory 83rd: Would you not say, Mr. Burton, that the fact that all those dams were constructed in the river, is persuasive evidence that the stream was not capable of navigation for useful commerce?

A. No, I would not decidedly. I have known instances in which persons, even by Acts of Congress have managed to sneak in a dam where they ought to be barred for doing so. I remember one instance in which it was done in the Tennessee river, and the next winter the people who were advocating it, wanted it repealed.

As to having any of the facts as regards the condition of the river in its natural state, I have none, except superficial ideas from reading reports, and I have never given any special attention to that locality, except as connected with the proposed drainage channel, and have not in mind the course of the stream between its mouth and Lockport, except as I have just casually examined it on the map.

74 WILLIAM LORIMER:

Direct Examination.

My name is William Lorimer. I am forty-six years of age. I reside at Chicago, Illinois. My occupation is that of manufacturer and general contractor. I am a member of Congress and reside in Washington during the sessions of Congress. I am a member of the Committee on Agriculture and Committee on Rivers and Harbors. I was elected in 1894, and was out one term of two years. The remainder of the time I have been and now am a member of Congress. I was assigned to the Committee on Rivers and Harbors of the House of Representatives in December, 1903, I think. This is the third Congress of two years during which I have been a member of this committee. I have during my service on this committee given study and investigation to the general proposition of Rivers and Harbors, and during my service in Congress, I have given study to the waterway between Chicago and New Orleans. That waterway would be from Lake Michigan through the Chicago river and Sanitary District Canal, and beyond that, any course that might be adopted by the State or Federal Government, either the Desplaines river or the Illinois and Michigan Canal, or a canal that might take it down to the south side of the Desplaines river by the Kankakee, and then through the Illinois river into the Missis-
75 sippi, and on to the Gulf. I am acquainted with the Desplaines river. I have given it study for about twelve years. I have known it for thirty-eight years.

Interrogatory 12th: State whether or not, Mr. Lorimer, the Desplaines river is a navigable stream.

Objected to as incompetent, irrelevant and immaterial, and as an opinion for which no foundation has been made.

A. It is a navigable stream.

Q. What is a navigable stream?

Same objection.

A. A river that is capable of bearing boats, upon which can be transported commerce, deep enough and wide enough, with water enough. As to what minimum depth of water in the channel of a river affording from 60 feet in width to a quarter of a mile in high water, boats can be built to bear commerce over water that draw 2 feet in depth. I know that

in my personal experience. From the study and investigation that I have had of the navigable waters of the United States, in connection with my official duties, I have known of navigation on the Tennessee river, parts of it at times was of less than 2 feet of water.

Q. Does the fact that there may be for a stretch in the river, rapids or stone or rock, destroy the navigable character of the stream?

Objected to; incompetent, irrelevant and immaterial; no foundation laid for question.

A. No, it does not.

Q. Basing your opinion on your experience and absorption on the one hand, and your study of Rivers and Harbors, in the course of your work as a member of the Committee on Rivers and Harbors of Congress, does the fact that a
76 portion of a river contains rapids or boulders, in any sense destroy the navigable character of the river?

Same objection.

A. It does not.

Q. If a river has sufficient water to carry boats a part of the year, say three or four months only, exclusive of the time that the river may be frozen over, does or does not that state of affairs destroy the navigable character of the river?

Same objection.

A. No.

Cross-Examination.

When I stated that this was a navigable stream, I mean that it is a navigable stream because it can be navigated by boats that are capable of carrying the commerce of the country. I know that first of all, because I have been over the stream during my lifetime practically all the way from its mouth to the Town of Wheeling, and I know that between the Illinois river and Lockport, there is minimum depth between the low standard stages of the river, certified to by the engineers that made the survey, over the rapids to the mouth of the river, of not less than 3 feet of water, and over the rapids at Treat's Island, of not less than 2 feet of water, and that only for a distance of about 500 feet between those two rapids, there is a depth of water all the way from 4½
77 feet to 15 feet. Beyond Treat's Island, up to and through Lake Joliet, there is a depth anywhere from 4 feet to 17 feet. It is all the way from say 125 feet to 1,500 feet wide.

That width of 1,500 feet is in Lake Joliet, and between Treat's Island and Lake Joliet, it is more than 1,500 feet wide in some places. The nearest point, according to my recollection, is round Treat's Island, what might be called right there according to the position you are viewing the river from, either by the north side of the river or the west side, there is a big considerable turn right there. I haven't any doubt that a boat we are all familiar with, the Illinois Fish Boat, could be so equipped with engines, as to navigate all the way from St. Louis to Lake Joliet. I got the information as to the depth of water over the rapids, from the report of the engineers, the one making the survey from Lockport to St. Louis, that was published in 1905. That is the only survey for the 14 foot waterway.

I know that boats without any extensive expenditure for machinery, can navigate the river from the rapids at Joliet to the mouth of the Desplaines river. Then I am quite sure that a boat of the character that I just mentioned, the Illinois Fish Boat, can be equipped with machinery so that it can go up the river. I did not ever hear of a boat of that character going up or down the stream. I did not ever know that part of the river, or any boats being used for commercial purposes, being navigated up or down the river;
78 I have known of them being navigated for commercial purposes above Joliet. As to the depth of water not being the only matter to be considered in the determining whether boats can be navigated, of course if a stream was too narrow, that would control. The slope could be so much at Dresden Heights and at Treat's Island, and is not so great that boats could not be navigated. I think about 4½ feet is the slope from Dreden Heights down to the Illinois river. As to supposing the slope at Dresden Heights to be 1.6 feet per 1,000 feet, or 8 feet to the mile, I have gone over the ground there in the low water stages of the Desplaines river, and there is no doubt in my mind that you can take boats up the Desplaines from Dresden Heights. Suppose the slope to be 8 feet to the mile, as shown by this report of the engineers of the United States Government, boats for the purpose of profitable navigation could be run over those rapids by cordelling, without any doubt. That is, they could be so equipped that they could be built up conveniently and rapidly. I have never heard of it being done, but I know enough about machinery to know that they could be equipped for that pur-

pose and operate profitably. I have never run a boat line, but from what I know of rail rates and water rates, I have no doubt that goods could be transported from St. Louis to Joliet by water, and cordelling over those rapids that we are discussing, for less than you can take it there by rail, and therefore it is profitable. As to how you would get over the dam at Marseilles, the Illinois river is susceptible of improvement, so you could build a lock there and carry it out
79 through the lock. The Illinois river is under improvement. If it were improved at such points as needed improvement, of which Marseilles is one, boats might be run up the river. For easy navigation, there should be improvement all the way up the Illinois and the Desplaines rivers to Joliet. Boats could not profitably, for a commercial purpose, in the conditions of things as they now exist, without any improvement, be run from St. Louis to Joliet.

There would have to be some improvement in the Illinois river. Well, now you put the question whether or not it would be profitable, and I can only answer that, based again on the statement I made a little while ago, on the difference between the railroad and the water rates. If the Illinois drawing 24 inches of water, to pass through the river into the Desplaines river, I have no doubt about it. There is not any doubt but what a boat drawing 24 inches of water, could go from the mouth of the Desplaines river up to Joliet now; well, to the foot of the rapids at Joliet, that is, to Bran-
80 don's Bridge, that neighborhood. As to a boat drawing 24 inches of water going over the rapids at the mouth of the river at Treat's Island, the proof of that is the depth of the water, 3 feet. Now, if it is admitted that a boat can be cordelled over the rapids, and that I believe, then for the balance of the way there is plenty of water. There is 8 to 15 feet in the first stretch, and 4½ feet to 17 feet in the second stretch, to the head of Lake Joliet, a distance of 6 miles. In other words, there is in those two reaches, a depth of from 4½ feet to 17 feet, over a stretch of about 9 miles of water. Now, there is depth enough there over those rapids, for a boat drawing 24 inches, to pass over.

I know the length of the rapids between the mouth of the river and Joliet; I know from memory and not exactly, pretty close. I should say altogether—there is altogether from Joliet to Dresden Heights, or the mouth of the river, I think

there is somewhere in the neighborhood of 4 or 5 miles. I do not pretend to be accurate as to the exact distance, but somewhere in that neighborhood; that is, from the foot of one rapids to the mouth of the Desplaines river. I remember what the conditions of the river are with reference to the rapids, from Lake Joliet to Lockport. Well, boats could go up there, and I believe boats could be so equipped that they could be taken up there. I do not know of any boats now on any of the rivers that are so equipped as to go up that stream, but there isn't any doubt in my mind about being able to go up to Dam No. 1. They could not get
81 through that dam. To make it a first class navigable stream, there must be locks and dams, and my opinion is, the locks and dams can be constructed without any difficulty at all, and when I say that, I mean to say I know it can be done. As to the state of the river being now such that useful commerce can be carried on, commerce can be carried on from the foot of Treat's Island to Joliet, no one will dispute that. You could build a boat that could go from Treat's Island up to the head of Lake Joliet, that could carry 1,000 tons of freight. I do not say whether the commerce is there, and do not know whether the commerce is there. I know that it is capable of handling the commerce. There is commerce between Treat's Island and Lake Joliet, but the commerce is not carried on on the river. As to whether, if a line of boats were constructed between these two points, it will be profitable and useful to the community, that would depend altogether what sort of commerce it is, and what it is to be used for.

I can tell you a little experience I have had myself. I was at one time doing some work on the Desplaines river, and I had a cofferdam I was having a good deal of trouble with. I got a load of crushed rock, and brought it down the Illinois and Michigan Canal, to a point where the canal crosses the Desplaines river, cordelling it up about a mile. The reason we did that was because we could handle the rock cheaper that way than any method we could devise, so that for a distance of 6 miles, under the same conditions, it would be
82 profitable. It was profitable to us, and that is why we did it. From my own personal knowledge of the river, I would say that the river was capable of being used for commercial purposes. I know that you can use the Desplaines river from the Joliet & Eastern R. R., for a boat drawing 9 feet of water down to the City of Joliet, and for the pur-

poses of transporting stone from anywhere along up there in the neighborhood of Lockport, down through the Drainage Canal, into the Desplaines river, to unload at Joliet. There is no doubt of its being profitable to transport stone down that way. The work I was doing when I used that stone, was lowering the bottom of the Desplaines river for the Sanitary District.

That from the fact that there are several pools in the river, where a boat could be floated, and could be made to carry, for a short distance, produce or stone, I say that the river is capable now of being navigated for the purposes of commerce. It is not necessary that a river shall be navigable, in fact in all its length, to be a navigable stream. For instance, the Potomac river is navigable up to and a little beyond the City of Washington, and there is a considerable fall about ten miles out from here, but the Potomac river is a navigable river beyond that point. And the Desplaines river, connecting with the Illinois and Michigan Canal, which is a navigable stream of the United States, and capable of navigation and transporting commerce profitably, and into the Illinois,—is a stretch of navigable waterway of the United States that commerce is actually transported over; so that it makes part of the Desplaines river actually navigable and properly so, and I consider it a navigable stream for that reason, although in parts it could not be considered navigable. The fact that a part of the Desplaines river is used by the Illinois and Michigan Canal, and is navigable, does not alone make the whole river navigable. The river is actually navigable, and nobody will controvert this statement. Below the City of Joliet and Treat's Island, and below the rapids at Treat's Island, and below the rapids at Dresden Heights, it is actually navigable at the shoalest point of 4 feet. Then
83 it is actually navigable from Dam No. 1 to the Drainage Canal below Lockport; and that is a navigable waterway declared by our Legislature when a certain quantity passed through it, because the largest ship navigating the Great Lakes, can actually navigate it. The minimum depth of course runs down to 3 feet below the rapids. To the foot of the rapids below Treat's Island, there is actually 4 feet. I can only say that the report made on the 14 foot waterway, made from Lockport to St. Louis, shows that there is no point between the mouth of the Desplaines river and the foot of the

rapids at Joliet, where the water in the low standard stages, is not 2 feet deep, and that is only for a distance of 500 feet. Over the rapids at Dresden Heights, my recollection is that 3 feet is the lowest. As to the date when the river was gauged, well, it was gauged for a considerable length of time, and the gauge reports are contained in that report that you have before you. The report published in 1905, was before the Sanitary District water was turned into the Desplaines river. As to the condition before it was turned in, I have never made investigation, and do not know a thing about it. Before this report was made, I had no information as to the depth of any part of it. The reach above Treat's Island to the foot of Lake Joliet could have been navigated, I am quite sure, prior to the time when the Sanitary District water was turned in. After taking boats up from the mouth of
84 the river to the City of Joliet, I do not know what the depth was there in the low stages of water, and for that reason, cannot express an opinion. That there was a stretch of the river, above Joliet, where large boats 9½ feet in depth could navigate, was because of the improvement in the river there by the Sanitary District. I do not know how deep the water was before the tailrace was constructed or the quantity. I think I had better say that from the time the canal was opened, there has been passing all the way from 225,000 to 420,000 cubic feet per second when the bear trap was down. Now, part of it, or may be all of it, flowed over this part of the river that we are referring to. I do not know how much, and I do not think anybody else does. I do not know how deep it was for that reason. It is possible to take the water coming from the Sanitary District Channel, the main channel, and discharge it into the Illinois river, below the proposed dam of the Economy Light & Power Company at Dresden Heights, without discharging the water into the Desplaines river. The water in the Sanitary District Channel, coming from Lake Michigan, is taken through the channel and discharged into the Desplaines river, by authority of the court, of the Legislature of Illinois, and by permit from the Secretary of War, to divert it from Lake Michigan. Congress might stop this permit at any time.

Interrogatory 71st: The stretch of water in Lake Joliet, that is between Brandon's Bridge and the head of Treat's Island, would not be affected in any way by the construction

of the proposed dam of the Economy Light & Power Company?

Objected to as not important and not relevant.

85 A. To be truthful about it, I could not say. My opinion is from what I have heard about it, that they would construct above the level of Lake Joliet. I do not know about it as a matter of fact.

The proposed dam would not decrease the depth of water in Lake Joliet. It might make Lake Joliet wider, I do not know about that. I do not know the exact depth of water prior to the time when the Sanitary District Canal began its discharge in the Desplaines river. I never knew until this report was made. From observation, I have known from time to time what,—in the low stages of water now, I know that there is water enough at certain periods of the year, coming from the natural watershed of the Desplaines Valley, to make a considerable flow of water over those rapids.

Interrogatory 76th: In your judgment, Mr. Lorimer, would the construction of the proposed dam at Dresden Heights, interfere in any way, with the proposed deep waterway, if proper provision for locks were made at that point?

Objected to as not being cross-examination, and not relevant to the matters at issue.

A. Locks could be built there to pass boats through.

Re-direct Examination.

COUNSEL FOR COMPLAINANT. I will ask Mr. Lorimer to state any fact in connection with this matter about which you have not been specifically asked.

A. As a member of the Rivers and Harbors Committee, and on account of the work that I have been doing, and the searches that I have made for information, I have come to the opinion with reference to waterways, and that all members of the committee that I have known, have thought a waterway that is navigable in part is navigable in fact, and even though it may be interrupted by rapids or perpendicular falls or sand bars, as long as it may be made navigable, it is a navigable waterway of the United States, and I know that a part of the Desplaines river, from the end of the Sanitary District Canal, where they have a lock that they can lock boats through down into it now, is navigable for boats of 8 feet of draft, and it is navigable for boats that can carry

a considerable commerce through the Desplaines river, into the Illinois and Michigan Canal, and connect with the Illinois river at La Salle; and I know that it can be so improved as to connect with the Illinois river, and made navigable for boats of any length—six hundred feet long, drawing 24 feet of water, capable of carrying from 6,000 to 12,000 tons of a cargo; and it is because of that knowledge and information of the surroundings, and its capabilities, that I make the statement that it is a navigable waterway of the United
86 States, and because our courts have so decided—have made the Illinois and Michigan Canal a navigable waterway of the United States, and a part of it is the Desplaines river. It is the connecting point of navigable waterways of the United States. I never had any doubt, for the last ten years, of the navigability of the Desplaines river.

I think, as far as I know, and that is up to Wheeling, I think there is watershed enough there to take care of the seepage, and make the Desplaines river navigable up to Wheeling. We call Wheeling 25 miles northwest of Chicago —from Milwaukee avenue, Chicago. It is in Cook County. It is above Chicago, on the Desplaines river.

Deposition of C. T. HEYDECKER:

Direct Examination.

87 I live in Waukegan, Lake County. Have lived in the county nearly sixty-two years, ever since I was born. Will be sixty-two in September next. Was born in Mill Creek, now Wadsworth, Newport, Lake County, Illinois, a scant mile from the Desplaines river. I lived there until I was twenty-one. The river flows from north through the town. I became familiar during those early years with the physical condition of the river from the state line to the south line of Lake County, and also with the current reputation as to
88 the history of its use. In the winter time I would skate down it; in the spring and summer we would find good the summer and in the autumn. From the state line to the south county line is twenty-four miles. Lake County is the duck shooting and fishing in it. As much as half a dozen winters I made trips on the river, between the ages of twelve and twenty-one, and about the same number in the spring and in

northeastern county of the state. It joins Cook County on the south. The river flows through Cook County below. Beginning at the state line the river is in a bed with a considerable bank on either side, running about six miles, then it
89 strikes a place where it spreads out more into the prairie again, but there is a well defined channel with a bed, but not such a deep bed, with bluffs on the sides of it, for about six miles. In the winter, in the spring or in high water time it would overflow out of its course, over its banks; then it would go down for about five or six miles again; well, two or three miles in there that would have a tendency to overflow; then it strikes what is known as the Gurnee bridge, or what is called the old O'Plain bridge; it used to be called the O'Plain instead of the Desplaines. It is also spelled Au Plain. The name O'Plain was in more current use among the neighbors. There was a little cabin in those days that went by the name of the O'Plainhouse here in Lake County at what is now Gurnee. It is the same river that we now call the Desplaines. Then it runs in a deeper channel from there down to the county line. I think about a mile or a mile and a half
90 this side of the county line, and swerves out again just above what was known in the early days as the Vincent mill, now known as the Struckmann mill. In some places, as I say, it would be down in a deep gorge and in other places it would not be so deep, and the east bank of it nearly all the way through was heavily timbered with oak, walnut and some hickory and softer woods. It has been cut off now. In the north part the timber was cut into cord wood, much of it. Some of it was taken to the mills; in the south part it was taken to the Struckmann mill. The logs ran down in strings of logs about five or six miles. There was no occasion to raft them because the earliest I remember it, the Struckmann mill was in there with a dam. You couldn't have put the logs over it only by rolling them. There was a saw mill there and they floated in there and I have seen logs in the dam there above the mill, in the mill pond.

There would be places where those banks would be eight or ten feet high. Then you go down to another place there would be deep holes, and then there would be a shallow place, but in summer time the banks of the river would be up eight to ten feet above the water in some places and in some places they would be down so that you could ford through.

91 During the spring months, March, April and May, I think the water ran off along in May some time; it would go down in June. The bed of the river would be full and overflowing on the flats.

It would be six to eight or ten feet of water; the bank would be full and overflowing the bluff in many places.

In the months of September, October and November the bed of the river would be fairly well filled during that time. There wouldn't be so much overflow except during the equinoctial storms; that would be about the middle of September. I should think the average in the spring months, not counting the deep holes, would be from two and a half to three feet, maybe more, and at times there would be eight and ten feet when the freshet would come down. In the three fall months it would probably be a little less than that, from two to two and a half, possibly three feet.

In the three summer months, June, July and August, that would go down more and probably be less than at any other time. There might be times when it would only be half a foot. There would be places where the gravel and sand was in where you could get across without any water at all. It would be narrowed down to where you could jump across in some of the places. That was in the shallow places that
92 they used to call the fording places.

Q. What was the current reputation as to the early use of the river previous to the time when you first began to know of it?

Objection by counsel for defendant; incompetent, irrelevant and immaterial.

A. I only know as to what I might have heard from the old settlers. I know in those days it was claimed by some of the old settlers that they had come up the river when they came into the county to settle, one in particular, the parents of two or my brothers-in law. I have heard him tell a number of times how he came up the river in his little boat or canoe, whatever they called it. I think they called them canoes, and he came and brought his belongings and his provisions up there and then went down the river trapping clear down through into the Illinois river.

I have a whole set of the Session Laws from 1833 down, barring a couple of sessions, that is all.

(Witness produces Session Laws of 1839 entitled "Laws of the State of Illinois passed by the Eleventh General As-

sembly at their session, begun and held at Vandalia on the 3rd of December, 1838. Published in pursuance of law. Vandalia, William Walters, public printer, 1839.")

On page 208 appears an Act entitled "An Act declaring the Desplaines river a navigable stream."

Section 1 of the Act is offered in evidence.

Q. Referring to this Act and to the phrase referring to the river "to its utmost limit within this State," can
93 you tell where that point is?

A. I can. I have been there a good many times, on the state line, between the States of Illinois and Wisconsin. At the state line it was nearly all timber on both sides. The bank is high. Just immediately south of that point, on the west bank it must be twenty feet high. The gorge is probably 100 feet to 75 feet wide there.

I have known this section of the Desplaines river a good many years. When I was connected with the Secretary
94 of State's office I ran across the original survey of the state line and I took a copy of it, so far as it directly affected Lake County in fixing the state line. I made that while in the office of the Secretary of State upward of twenty years ago.

It is stipulated that the original record of the Commissioners fixing the northern boundary line of the State of Illinois or so much of it as may be needed to fix the northern boundary at the point where the Desplaines crosses the same, or a copy thereof, certified by the official custodian thereof, may be offered in evidence at the trial without further proof.

At the request of counsel for the complainant the witness produces a book, the title page of which reads as follows:

ILLINOIS IN 1837;
A Sketch
Descriptive of the
Situation, Boundaries, Face of the Country,
Prominent Districts,
Prairies, Rivers, Minerals, Animals,
Agricultural Productions,
Public Lands, Plans of Internal Improvement,
Manufactures, &c.
Of The
STATE OF ILLINOIS:
Also
Suggestions to Emigrants,
Sketches of the Counties, Cities and Principal Towns
In the State:
Together with
A Letter on the Cultivation of the Prairies,
By the Hon. H. L. Ellsworth.

PHILADELPHIA:
Published by S. Augustus Mitchell.
And by
Grigg & Elliott, No. 9, N. Fourth Street.
1837.

On the reverse side of the title page is the certificate of copyright and the imprint of the printer, reading as follows:

"Entered according to the Act of Congress, in the year 1837, by S. Augustus Mitchell, in the office of the District Court for the Eastern District of Pennsylvania.

Stereotyped by J. Fagan, Philadelphia."

95 On the outer cover of pasteboard appears the legend:

"Illinois in 1837: With a map."

I own this book and have owned it twenty or twenty-five years.

Counsel for complainant offer in evidence pages as follows:

Objection by defendant's counsel; incompetent, irrelevant and immaterial; no foundation or proof that author had knowledge of facts with which he deals.

COUNSEL FOR COMPLAINANT. I read from the preface, the last two paragraphs on page VII.

"The bulk of the information hereafter detailed is quite recent, being derived in part from the lately pub-

lished and valuable Gazetteer of Illinois, and the Emigrant's Guide by the Rev. J. M. Peck; also, from Flint's Geography and History of the Western States, Beck's Gazetteer of Illinois and Missouri, Schoolcraft's Travels, and the works of Darby, Hall, Long, &c. The work contains, likewise, extracts from different correspondents, and from various gazettes printed in the State, some of them only a few weeks before its publication; particularly the Peoria Register and North-Western Gazetteer, the attention bestowed by the editor of which in distributing recent geographical and local information calculated to be useful to emigrants, renders it undoubtedly the most interesting print of the kind in the state.

The accompanying Map of Illinois is, for its scale, probably the most complete yet published; it contains, it is believed, all the United States surveys available at this time; the whole of the counties, seventy in number, organized in the state; and it will be found, on examination, to correspond with the descriptive part of the book—a desideratum not always found in publications of this kind."

96 Now, on page 28, under the heading "Rivers," I will read the first paragraph:

"It is only necessary to look on the map of this great state, to see what astonishing advantages for inland navigation nature has given it. On its northern borders it has for some distance the waters of Lake Michigan and the various streams that empty into it; and by this vast body of waters a communication is opened with the northern parts of Indiana and Ohio, with New York and Canada. On the northwest frontier it has Rock River, a long beautiful and boatable tributary of the Mississippi. On the whole western front it is washed by the Mississippi, and on its southern by the Ohio. On the east it is bounded by the Wabash. Through its center winds in one direction the Illinois, connecting the Mississippi with Lake Michigan by the Desplaines and by the Chicago rivers; and in another direction the beautiful Kaskaskia flows through the state. Besides these there are great numbers of boatable streams penetrating the state in every direction. Such is the intersection of Illinois by these waters, that no settlement in it is far from a point of

boatable communication, whether with Lake Michigan, the Mississippi, the Ohio or the Illinois."

Now, on page 35, beginning with "The principal tributaries of the Illinois river are the Kankakee, Desplaines, Fox," etc., I will read as follows:

"The principal tributaries of the Illinois river are the Kankakee, Desplaines, Fox, Spoon and Sangamon rivers. These are all considerable streams, and are, after the Illinois, Kaskaskia and Rock river, the most important in the state.

The Kankakee, or Theakiki, is the eastern head branch of the Illinois. It rises in the northeast part of the State of Indiana, two or three miles from the south bend of St. Joseph's river, from whence running in a westerly and northwesterly direction through the northwestern part of Illinois, it unites with the Desplaines and forms the Illinois, forty miles above the mouth of Fox river. The Kankakee has a course of about 150 miles, and is upwards of 200 yards wide at its mouth. The prairie county through which it passes is generally of good soil. This river was discovered at an early period by the French, and was one of the principal routes used by them in
97 passing to the Mississippi. Navigation for small craft can be effected, in high stages of the water, from the St. Joseph's river into the Kankakee. The latter, for the first fifty miles of its course, flows through an extensive swamp."

And the first paragraph on the top of page 36:

"The Desplaines river is the northern head branch of the Illinois. It rises in Wisconsin territory, a few miles west of the Town of Racine, on Lake Michigan, and flowing through the north part of the state, it joins the Kankakee at the boundary line between La Salle and Wili Counties, where they form the Illinois river. The Desplaines, in its course of 150 miles, runs generally over a bed of limestone. The country along its borders is populating rapidly, notwithstanding the apparent deficiency of timber. About forty-two miles above the mouth of this stream is a swamp connecting it with the Chicago river, through which boats of some burden have often been navigated into Lake Michigan. This route was used by the traders as a medium of communication between the great lakes and the Mississippi, from the first dis-

covery of the country by Europeans;—the circumstance first suggested the idea of an artificial connection by means of a canal at this point. In the bed of the Desplaines, about forty rods above its junction with the Kankakee there is a fossil tree, of a very considerable size. It is a species of phytolites, and is embedded in a horizontal position in a stratum of newer floetz sandstone, of a gray colour and close grained. There are fifty-one feet six inches of the trunk visible. It is eighteen inches in diameter."

COUNSEL FOR COMPLAINANT. The above book contains a map of Illinois, with the certificate at the top, "Mitchell's Map of Illinois, Exhibiting its Internal Improvements, Counties, Towns, Roads, &c. Philadelphia: Published by S. A. Mitchell, 1838." It represents the Desplaines river, Mud Lake; just below Mud Lake the Town of Desplaines; below that the Town of Keepotaw, below that the Town of Lockport, below that, just opposite the mouth of the Kankakee, the Town of Dresden, and in the point of land made by the confluence of the Desplaines and the Kankakee, the Town of Kankakee. I am reading this in evidence, and with the verification of counsel for the defendant, who approves of the reading as correct.

COUNSEL FOR DEFENDANT. That is correct.

98 Q. Mr. Heydecker, you produce another volume, the title page of which is as follows:

The
Encyclopedia
of
GEOGRAPHY
Comprising a
Complete Description of the Earth
Physical, Statistical, Civil and Political;
Exhibiting its Relation to the Heavenly Bodies,
Its Physical Structure,
The Natural History of Each Country,
And the Industry, Commerce, Political Institutions,
And Civil and Social State
of
All Nations.

By Hugh Murray, F. R. S. E.
Astronomy, &c. by Prof. Wallace :Botany, &c. by Professor
Geology, &c. by Prof. Jameson, :Hooker.
:Zoology, &c. by W. Swain-
:son, Esq.

Illustrated by Eighty-two Maps.
And about Eleven Hundred other Engravings on Wood,
Representing the Most Remarkable Objects of Nature and Art
In every region of the Globe
Together with a
New Map of the United States.

Revised with Additions
By Thomas G. Bradford.

In Three Volumes.
Vol. III.

Philadelphia.
Blanchard and Lea
1853.

On the reverse side of the title page is the certificate of copyright and the imprint of the printer reading as follows:

"Entered according to the Act of Congress in the year eighteen hundred and thirty-six by Carey, Lea and Blanchard, in the Clerk's office of the District Court for the Eastern District of Pennsylvania.

Stereotyped by J. Fagan.
Printed by T. K. and P. G. Collins.

COUNSEL FOR COMPLAINANT. And on page V of Volume 1 of said Encyclopedia, is the advertisement of the American Edition, which reads as follows:

ADVERTISEMENT TO THE AMERICAN EDITION.

"The object and plan of the Encyclopedia of Geography have been very fully set forth in the Preface of the English Edition, and the names of the editor and his collaborators are sufficient vouchers for its value. It is due, however, to the American reader, to inform him in what respects these volumes differ from the original. The whole of the English work is here given, with the single exception, that the description of Great Britain, which occupied more than one-third of the Book devoted to Europe, and considerably more than the space given to the whole of America, has been somewhat abridged; but, it is believed, without the omission of anything of
99 importance. The text has been carefully revised and corrected throughout, and in most cases more recent, statistical details have been substituted for those of the original. The additions to the first volumes are not considerable in amount, but are generally such as have been required by changes in our knowledge or in the conditions of things. The Book relating to America has been enlarged as far as the limits of the work would allow, principally by the addition of local details; the condition of the new American states is too unsettled to render it worth while to fill much space with account of their political relations, which might be entirely changed before these pages met the eye of the trader. The chapter which treats of the United States has been written anew, the original being extremely imperfect and incorrect, as all European treatises on the subject are. Our growth is so rapid, the increase of our population, wealth, commerce, manufactures and other industrial resources so amazing, the creation of new towns, cities, nay, states, is continually making such a change in the face of things, public works are conceived, planned and executed on so great a scale and with such promptitude, that it is not at all surprising that a distant writer should be entirely baffled in his attempts to describe the country as it is. The Zoological section alone has been retained, but it has been much enlarged, chiefly from a later work of Mr. Swainson's and some general remarks upon the shells

of the United States have been added. For the account of the Geology of our country, the reader is indebted to Prof. Rogers, of the University of Pennsylvania. The Botanical section has also been prepared by a gentleman of high reputation in the scientific world. The Editor is painfully sensible of the imperfections of the other parts of this Chapter, but he trusts that the difficulties of the subject will obtain for him the indulgence of the reader.

Philadelphia, October 1st, 1836."

COUNSEL FOR COMPLAINANT. Similarly as this is the property of the witness, and is a rare book which we ought not to ask the witness to part with, I shall offer and read in evidence beginning with the first paragraph under the heading, "3. State of Illinois," on page 562, and containing to the end of the same paragraph on page 563.

COUNSEL FOR DEFENDANT. I shall object to it on the ground that it is incompetent, irrelevant and immaterial.

COUNSEL FOR COMPLAINANT. I will read as follows:

"The rich and highly favoured tract of country extends from 37 degrees to 43 degrees 30 minutes N. lat., and from 87 degrees to 91 degrees 30 minute W. lon. Its extreme length is 380 miles; its breadth in the North is about 140 miles, but it extends to 220 miles in the center, whence it contracts toward the South to a narrow point. The land area is 55,000 square miles. Illinois has Wisconsin Territory on the North, Lake Michigan, Indiana and Kentucky on the East and Missouri and Wisconsin on the west; it has a lake coast of about 60 miles; the Mississippi forms the western boundary through a distance of 550 miles; the Ohio is its southern boundary through 140 miles, and on the east it has the Wabash for 150 miles. The interior is penetrated by noble rivers affording extensive advantages for inland navigation. The little Vermillion, Embarras and little Wabash are the principal tributaries of the Wabash from Illinois. The Illinois, the principal river of the State, is formed in the northeastern part of the junction of the Kankakee and the Desplaines, and flows, by a southerly course of 300 miles, to the Mississippi. For the distance of nearly 50 miles in the upper part of its course, there are obstructions to its navigation in a low stage of water, and the rapids above the mouth of the Vermillion River can

be passed only in times of flood. Below this steamboats of moderate burthen find no impediment through a distance of 260 miles. 'The current through the distance last mentioned is exceedingly gentle, often quite imperceptible; indeed this part of the river may with much propriety be denominated an extended pool of stagnant water.' (Long's Expedition to the St. Peter's river.) The Illinois has been well described as a natural canal, flowing through natural meadows. In high floods the Illinois overflows its banks, and the Mississippi, in a high stage of water, backs up the river to a distance of seventy miles from its mouth. In some places it expands to such a width as to receive the name of Lake; such an expansion is Lake Peoria, about twenty miles in length. The Kankakee arises in Indiana near the St. Joseph's, and boats pass in the wet season from the channel of one river to that of the other. The Desplaines rises in Wisconsin, and runs for some distance parallel to the shore of the Lake Michigan, and not more than ten miles from
101 the lake, with which there is a natural navigable communication, through which loaded boats often pass during the spring floods. The Fox River is a large stream which rises in Wisconsin, but there are rapids a few miles from its mouth. The Vermillion is a fine mill stream; the Spoon River and the Sangamon are navigable streams. The Rock River is a large tributary of the Mississippi, rising in Wisconsin; it is navigable for some distance, but in low water the navigation is impeded by several rapids not far from its mouth. The Kaskaskia rises near the centre of the State and reaches the Mississippi in a southwesterly course of about 400 miles; it passes through a fine country and is navigable for some distance."

Heydecker Cross-Examination.

The only dam on the Desplaines river in Lake County is the one I spoke of at the Vincent or Struckmann mill. That was there at my earliest recollection. It stretched clear across the channel and caused the water to flow back, but in high water the water would flow back for half a mile east of it and around the dam and mill pond.

The width of the water from water's edge to water's
102 edge at the State line would be probably 75 to 100 feet. Further down it got up to 150 feet. At high water times

it would be half a mile wide, and at dryer times, at midsummer, it would narrow down from that. The average depth during the winter months, judging of the stream that we used to skate on, was from two and a half to three feet. It would be iced over that much. There are not any rapids or riffles in the river through Lake County. I think in some of the places they say the current is as slow as three miles an hour. Some of it was more rapid than that. There was nothing that you would call rapids of any kind. There were fording places wherein the summer there would be above it a great big hole where the gravel and sand was washed out, and a little above would be a bend in the river, and we used to call them in the summer time a swimming hole.

There would be almost no water running. During those
103 seasons there would be times when you couldn't float anything on it at places.

That would not be so the greater part of the summer months. It would be maybe a couple of weeks in August, or maybe a part of August when the dry time would come.

Over those shallow fording places there would be times when there would be from 6 inches to 2 inches of water, and sometimes I have seen some of the fording places dry. I have seen the logs floated down to this mill. I have seen them in the dam above the mill. They would probably come from anywheres in the Libertyville woods or the Deerfield woods or the Vernon woods, probably five or six miles above the dam. The people who did have them sawed them into posts and fence boards down there. I have seen them in the mill pond and in the river. I never saw logs hauled there to the mill pond by teams. I wouldn't be there that season when they would be hauling logs, but there probably was. I couldn't say whether there were 500 feet or 5,000 feet of logs floated down there. I think there was more than 500 all right. Lemuel Short told me he came up the river in a canoe, and the woman we used to call old mother Miller, the wife of Jacob Miller, who died in California. I knew them personally. Mrs. Miller would tell of her experience coming from Virginia and being in Fort Dearborn during the Black Hawk War.
104 They came out in 1834. I knew Mr. Short personally.

Two of my sisters married two of his boys. They told us about coming up the river from Chicago in canoes. Short came up from Grundy County. He died down near Coal City. He came in 1835. Another uncle, Emory, came here

from '35 to '37. Mrs. Miller came up here in 1834. I heard them tell it several different times and it would be told in different language every time. I have heard Short tell about his coming up, that he started from down in Grundy County where he had a large amount of land near Coal City. He bought that and afterwards married down there. He came up before the land was surveyed in Lake County,—that would be in 1839—and located some land up there, took it from the Government, and that when he came up he brought up all of his belongings, his clothing, some provisions, his guns and dogs and tent with him up the river. He called it "coming from down the river down in Grundy County." I don't remember of his naming any place it was. They had a home —farm, down there and he had up here about 400 acres of land that they located on. I don't know anything about
105 there being seven or eight dams in the Desplaines river at that time; I was never down there at that time. I did not hear him tell of coming over any dams. There wasn't any dams there when he came up, that is, I never heard him tell of coming over any. I have heard of trappers tell of coming through the dams. I have heard him say it was difficult to go up through part of it on account of rocks. I don't remember hearing him say how he got around any dams. He didn't say that he carried the boat most of the way, because if he did he wouldn't say that he came up in the boat. He died about ten years ago in Coal City. Mrs. Miller died since I went away from the farm—she must be dead twenty or twenty-five years. They came here, as she tells it, they came out from Chicago, up the Desplaines river, and he built the first mill on Mill creek. The creek ran out just a little below Wadsworth. The Millers built the first mill in this territory, before the Vincent mill, sometimes called the Kennicut mill. Mrs. Miller said she came up from some point west of Chicago; of course I was not old enough to go up there very early myself; the neighbors used to tell about the folks coming up the river who came in here and settled on a farm adjoining father; father took our farm from the Government and they settled, they came up in 1836 or '37. That was James Emory.

106 *Re-direct Examination.*

I understood from their description that these two families, Short and Miller, came into the country for their perma-

nent establishment here by boat on the Desplaines river, and they went back down the river, trapping several seasons after that, came down in the fall and went back in the spring. Emory didn't bring his household property that way the first time. He stayed one winter and then he went back to New York State where he came from and got his wife and they came through that time in a prairie schooner.

Re-cross Examination.

I don't think they had any wagons at the time that Mr. Short came up the river. I don't think he had any wagon. He got property down there after he bought up here. He got a lot of canal lands.

All I can tell you is what the folks tell. Whether he could have done it or did do it I don't know. I wouldn't name
107 any place. I have no recollection of his ever saying Morris or Joliet or any place, but from down there he came up the river. It may be that he came up from some point in Cook County. It may be that he got on at Wadsworth and went six miles further up the river. I don't know. It is my impression, left on my mind as an old story of the neighborhood.

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108 J. H. HILLEBRAND, a witness for complainant, testified as follows:

Direct Examination.

My name is J. H. Hillebrand. I am 52 years old. My residence is Chicago; it has been my residence for about 32 years. I am chief draftsman for the Sanitary District of Chicago. I have been employed in the Sanitary District of Chicago's offices in one way or another, for about 17½ years. Before I went with the Sanitary District of Chicago, I worked as civil engineer, railroad engineer and surveyor. I have been a surveyor and civil engineer, I guess about 30 years. To state in a general way some of my duties as chief draftsman of the Sanitary District, I would say that I take charge of all the surveys, plats and maps, the men employed platting the surveys, and I verify and examine and correct the plattings and mappings of the surveys. That work is all done under the supervision and direction of the chief draftsman.

He is the man to whom the Sanitary District of Chicago looks for its correct maps, plats and profiles. I have held the position of chief draftsman for about 13 years.

The map and profile which is before me, which the reporter has marked for identification Hillebrand's Ex-
109 hibit 1, is a contour map from Chicago to Lake Joliet, giving the location of the main channel of the Sanitary District or Sanitary Canal, the Desplaines river and the Illinois & Michigan Canal, and also a profile of the main channel, and a profile of the Desplaines river. Those lie respectively, in three bands extending lengthwise, crossing the map. The strip marked on the upper portion of the map and extending almost all the way across it in yellow, is the Illinois & Michigan Canal. This map and plat was made under my direction and supervision while in the employ of the Sanitary District of Chicago. The sources from which the information is assembled, which is here portrayed, were from surveys of the Sanitary District. It shows the facts and matters with which it appears to deal, and which it appears to portray and represent, as correct as it can be done on a small scale.

Another mark or strip extending along the greater portion of the upper basin, which is marked in red, represents the main channel, of the Sanitary District of Chicago.

Another band also extending across the main portion of the map on the upper part, which is colored green, represents the Desplaines river, according to the original survey, existing before we built our river diversion. On the east end of it the part labelled in green "West fork of south branch," and again "south branch Chicago River," is the Chicago river and its branches.

Between the parts about at that point where the words "Ogden dam," occurs at one and a considerable distance to the right from that a narrow strip in green labelled
110 "Ogden ditch," is a ditch that had been in existence for years, and which connects the overflow waters of the Desplaines river with the Chicago river.

Along the map at intervals connecting parts of the green band labelled "Desplaines River," a strip put in in black, which is labelled in one place "river diversion," is what we call the river diversion, where we had to divert the river from its original bed. By we, I mean the Sanitary District of Chicago. I mean the work done by the Sanitary District of

Chicago, that diverted the course of the Desplaines river, and laid out a new channel for it. The Desplaines river now runs along that new channel partly and partly in the old channel.

When we built a new channel, the water filled the new channel entirely, and where we did not build a new channel, it filled the old channel, all of the water.

The course of the old channel and the several river diversions taking the place of the old channel where they occur, connect together and make a connected water course and stream from the one end of what is shown on the map to the other, and whenever a new channel has been created and
111 is delineated on the map, the water of the Desplaines river runs through the new channel. The various labels and legends and written matter set out upon the map correctly explain the portions to which they are attached.

The statement made in the letter press or legend of the map is correct. This map is in general and constant use by the Sanitary District of Chicago in ascertaining distances and locations of different parts of their work. We call it our index map. We have a vast number of smaller maps in greater detail of separate parts of the work. This is the general index or key to our set of maps.

This is what we call a blue line print. We had it done a couple of weeks ago. I had a negative and from the negative we had it made. The negative was taken maybe about six or seven years ago,—I am not positive. It was done under my direction,—long before any matters now in controversy had arisen.

These bands in red, and yellow, and green, and black were originally in blue lines, but they were recently colored in. The coloring itself, the red, the green, the black, and
112 the yellow were printed in by men yesterday, and I put those on at the request of counsel for complainant in order to bring out with greater distinctness the parts so colored.

The work of making the new channel by the river diversion was the first work by the District, and some of it began in 1892 or 1893. I think it was started before Mr. Randolph had charge, but he completed the work. Bennezette Williams was his predecessor as chief engineer.

As to the contours shown on this blue line print and the location of rivers, etc., the survey was commenced in 1890

and completed in 1895, and the location of the main channel or river diversion was put in in 1898, or 1897. The blue line print, which has the large main label, reading "Sanitary District of Chicago Map and Profiles of Sanitary and Ship Canal of Chicago from Chicago to Joliet, Jan. 1898," shows the conditions that existed in 1898, but they put in this continuation of the main channel from the controlling works at or near Lockport afterwards, down to the upper basin of the Illinois and Michigan Canal, as shown in red. The upper
113 basin is shown on this map in yellow, just above the word "Joliet." Between the point just to the north of Lockport, broadly colored in black, and the part showing the upper basin below the water power channel of the Sanitary District, has been put in since January, 1898, and is indicated in red. The channel for the waters from the Deep Run, indicated in black, lying just below the red line of the Sanitary District channel, the black line beginning at the section line just to the left of the "L" in Lockport, running down across Section 27 and into and half way across Section 3, is the channel of the Deep Run. The waters of the Deep Run are received by that artificial channel and conveyed so that they are all gathered in the Sanitary District channel below the power house. Along the central portion of the exhibit runs another strip which has in the center of it and near the top of the center of it, the words, "Main Channel" in large letters. That is a profile of the main channel of the Sanitary District of Chicago showing the grade line and the original surface; the grade line is the bottom; the red line extending across from one to the other and labeled "Bottom of Channel" represents the bottom of the channel as it was actually constructed; and the various squares and delineations
114 which appear above represents the surface of the ground and the distance;—the vertical distances, the elevations above and below Chicago datum.

The figures which appear at intervals on the horizontal line above the red bottom line, indicate distances above and below Chicago City datum, and that is represented by the line made up of dashes and dots extending across the maps, labeled "Chicago City Datum;" and the original, "Chicago City Datum is low water mark of Lake Michigan in the year 1847 and is 579.63 feet above the mean tide at New York, according to U. S. lake survey, and 578.56 feet above mean tide of the Gulf of Mexico, Beloxi, Mississippi, according to

the Miss. River Comm.," was taken from the official record of those bodies, respectively, and has been verified by me to be correct.

This central band across the exhibit, has a number of divisions by vertical lines,—one at the extreme right end being marked with a cipher, and then going along 100, 200, 300, 400, and 500, etc., at regular intervals out to 1,500, repre-
115 sents the distance from Chicago. 1,500 means 1,500,000 feet.

The part of the legend on the left hand of the general label, says "Map,"—that refers to the general map, constituting the band, and the exhibit which lies across the top of the exhibit, with the names and sections upon them.

And next to that word the statement appears "2 inches equal one mile." That represents the scale to the user of that part of the map, constituting the upper third, or "Strip No. 1" of the exhibit.

COUNSEL FOR COMPLAINANT. For distinction I mark here, as I speak, the right end of these three main channels: "Strip No. 1," "Strip No. 2" and "Strip No. 3." I said "1,500,000 feet; I meant instead 150,000 feet. Strike off the cipher.

The words immediately below the label last read, "Contour intervals 5 ft.," means the distance, or elevation between each contour is 5 feet. That refers to "Strip No. 1." For instance this contour (indicating) is 40 feet above Chicago datum, indicated by "40." (Witness makes the letter "A" at point indicated.) That is, in Section 25, containing the word "Terminal," next to the Chicago Terminal Railroad, this contour is plus 45. I point to another line in Section 1, and passing over to Section 36, which I mark "B," and I see that is marked "45." The interval between these two is 5 feet, which means there is a slope between these two lines of 5 feet. "40" means 40 feet above Chicago datum, and "45" 45 feet above Chicago datum.

116 Small figures and the same small size style of type, which are scattered about this map on "Strip No. 1" represent elevations above Chicago City datum; and the wandering lines upon which the small figures are marked represent a continuous line of country which is at that elevation; and when you see a line marked 40 you can follow that line as far as it goes, and wherever it goes it represents that the

country at that wandering line is 40 feet above Chicago datum.

The map is divided into small squares in "Strip No. 1" the squares being 2 inches square, and those represent the Government sections. The Range lines and Township lines are marked by the customary surveyor's and map maker's abbreviations.

Turning to "Strip No. 2" on the right of the general label of the exhibit, the words "Profile scale Horizontal 1 inch equals 2,800 feet; vertical equals 6 feet." That legend applied to "Strip No. 2," and also to "Strip No. 3," but not to "Strip No. 1." I adopted a scale so widely different, representing 2,800 feet horizontally by one inch, while vertically representing only 6 feet by an inch, in order to bring out the different elevations of the surfaces. To show the differences of elevation, we had to use a much smaller scale for the vertical than for the horizontal. If we used the same scale for the horizontal as for the vertical, the surface lines would practically be a straight line. These variations, which I seek to bring out by the profile, would be so insignificant as to disappear.

These sharp points, which appear at intervals along the top of the yellow-brown portion of "Strip No. 2," are highways, railways and levees.

As to the places marked "side track" under the word "main" in "Main Channel,"—the throwing up of a ballast road bed for the side track in this case gives an elevation which calls for such an expression. It must have been a spur to an ice house, or something.

117 These parallel horizontal lines running across "Strip No. 2," which seem to be about one-sixth of an inch apart, would represent successively the height of one foot above the one below it.

Across the top of this "Strip No. 2," a row of letters and figures at intervals, which look like letters printed on a little flag, with the initialed end. The extreme right-hand end is "O," and a few inches to the left, over the "C., M. & N. R. R." is "N. O."; and a little further to the left "M. N.," and a little further "L. M.," etc.—representing the contract section. For instance the place where "L. K." appears, as a sort of double flag with a circle around it, is the ending of Section L, and the beginning of Section K.

That is, this work when let out by contract was divided

up into numerous work sections, which were indicated by letters or by figures, and each one of those is here delineated, so that if you want to talk about something happening in Section L this would show you where that was at a glance.

That has nothing to do with the dimensions.

118 Right under the point where 5 and 4 in those section numbers come together, I follow a line right down the top of strip number two to the bottom of strip number two at that point, vertically, and I see at the bottom of it there is an irregular jagged line with cross hatchets showing running along it, and there seems to be a dividing line between some yellow-brown coloring on one side of it and some blue-gray coloring on the other side of it. That is the glacial drift excavation. The glacial drift excavation is represented in brown and the late excavation is represented in gray, then this cross hatch line here would represent the top of the rock. The line which lays along irregularly above the yellow-brown and toward the left hand edge of strip number two above the gray which has a small fringe of yellow at the top of it would be the real surface of the ground.

At places the words "The Desplaines River course" over some blue appears then the yellow will come up above the line which seems to be the water elevation and then blue again. For instance, the elevation of this part of strip number two, which is colored in deep blue and has the words "Desplaines River" above it, is a point there where the main channel intersects the Desplaines River, the original bed of the Desplaines River. It is in Section b on strip number one. I make an x and at the point of that x which occurs in the Surveyor's Section 27, the red line or band, which I have described as representing the Sanitary District channel, lies exactly in the course of the Desplaines River as delineated and painted in the original, there being green on both sides of the red for the Sanitary District channel. Going by the parallel lines which represent feet above datum, the surface of the Desplaines River at that point is represented as about seven and one-half feet above Chicago City datum.

The water in the main channel is supposed to be often
119 up to Chicago datum, which would be seven and one-half feet lower than the delineated surface of the Desplaines River at that point.

The blue at the east end of strip number two represents water in Lake Michigan. The water in the Chicago River is

just under the word "Bridgeport," and next to that to the left is a small pocket of blue labeled "Slip opposite Leavitt street." That blue represents the water in the slip. That is represented as being about one foot above Chicago datum.

Strip number three labeled "River diversion" is a profile of the Desplaines River and river diversion from Summit to the Wire Mill's Dam in Lockport is now called 16th street over here, and there in this strip number three is a pocket of blue labeled "Desplaines River," and then a bit of that yellow-brown projecting above the level of the pocket of blue. The yellow-brown represents the excavation, that is material to be excavated in the river diversion.

The letters upon little flags or target on strip number
120 one designate the section numbers of the different contracting sections of the work as on strip number two. The vertical lines dividing strip number two and strip number three are intended to be continuations substantially of the same set of straight lines, so that the portion between the straight line marked 700 and the straight line marked 800 would be the same as in strip number two and strip number one. The tabular statement of figures which appear in the left hand corner of the exhibit represents the amount of earth and rock excavated and work under construction, and the legend below "Further work contemplated but not contracted for" speaks of about the date of January, 1898. I am not sure it does, it may be a little later than that. The table in the upper left hand corner gives the quantities and the table in the lower left hand corner gives the amount and value. I mean the amount in dollars and cents of contract cost. For instance, between the meridian marked 1,000 on strip number three and the meridian which is not marked, but which is ten spaces to the left of the one marked 1,500 so as to become 1,600, the Desplaines River, the level of which is represented as seven and one-half feet above datum, that 1,000 is represented at twenty feet below datum at 1,600, then in the distance between the meridian 1,000 and the meridian 1,600 would be a fall of twenty-seven feet in the Desplaines River. The surface of the water as shown here would
121 be the actual surface at the time of the survey.

While going from the extreme right hand end from strip number three, which is about 350, to the meridian 1,000, which was the starting point before the Desplaines River appears substantially level, then the twenty-seven and one-

half feet would be the total fall of the river on the entire district represented by strip number three. The jagged mountain peeks showing up above the surface of Exhibit No. 3 are similar exaggerations in order to bring out the small deviations in the level of the surface by means of this large elongated and greatly magnified square, and on the left hand lower end of the exhibit is a sort of continuation of strip number two.

On strip number two the line which would receive the number 1,600 crosses through the word "River" to the left hand of and below Lockport, apparently the water there is represented as being about thirty-two and one-half feet below city datum, while on strip number three if that meridian represents the same thing it is only represented as twenty feet below datum. This is so because at the time there was a wire mills there, the river diversion shows the conditions with the wire mills in. There was a dam at Lockport and the long profile of strip number two shows the improved conditions of the river so that while it represents the same place it represents it at a different time. Strip number two
was not taken on the same line as strip number three.
122 Strip number three was taken along the line of the main
channel. This road is not exactly opposite Wire Mill's Road on strip number three.

There is no profile of the present condition. Strip number two represents the Desplaines River at meridian 1,600 as being thirty-three and one-half feet below datum and represents the level of the water to be just west of meridian 1,800 where the word "Adams Dam" occurs to be 58.8 feet below datum. That would represent a fall between those two points of the difference of between 33½ and 58.8. That was the old condition when the Adams Dam was still in existence. The Adams Dam was taken out in about 1899 by the Sanitary District.

I think Mr. E. L. Cooley has a profile showing the elevations of the river or the river up between Lockport and Lake Joliet as it is now.

COUNSEL FOR COMPLAINANT. Well, I will leave that part for the present and ask you if on coming again you can bring a profile which does show?

A. Yes, sir.

Thereupon counsel for complainant offered Hillebrand's Exhibit No. 1, in evidence. (Atlas, p. 3950.)

Objected to on the ground that it is irrelevant, incom-
123 petent and immaterial, and on the ground that it was made from a survey that has not been proved to be correct because no sufficient foundation has been made to establish the correctness of the map.

The WITNESS. When the surveys were made, which are here assembled, we had two surveyors in our surveying corps, one of the first was Ericson, the City Engineer, and Schrader, the West Park Engineer. They worked under the Chief Engineer's direction. There was an Assistant Chief Engineer at that time, I think T. T. Johnson was Assistant Chief Engineer, and each of these surveyors had a force of linemen and rodmen, extensionmen and observing men. Our surveying corps would constitute quite a large number of men and each and all of those men enter into surveys which are here assembled and platted. Their work was taken in the regular course of public business in the performance of duty, and their reports, and sometimes drawings, and their books were turned in to me, and this map constitutes an assembling exhibit of the information from all those sources of observation by all those men. The map is taken, relied on, and used by the Sanitary District of Chicago in and about its own business in connection with the work of the district.

Cross-Examination.

The green strip leading out of the Chicago River at
124 Bridgeport south towards the Stock Yards is the south fork of the south branch of the Chicago River.

The black line starting off at Ogden's Dam and the Desplaines River and running south to the end of contract Section 2 is the river diversion. It represents a channel that was constructed by the Sanitary District for the purpose of diverting into it the water of the Desplaines River while they were building the main channel of the district. It was parallel to the main channel, and that river diversion ditch or strip took all the water from the Desplaines River and it has ever since flowed there. The reason it was done was because the main channel was running partly through the old bed, the natural bed of the stream, and they could not build the main channel through the natural bed of the stream without taking the water out of it. The distance between Ogden's Dam, the head of that river diversion, and contract

Section 2 is approximately seven miles. The river diversion channel runs down to a point just above Romeo almost continuously with a few slight breaks where the water is allowed to pass into the natural bed of the river and the distance of the whole length of that river diversion strip from Ogden's Dam to Romeo is about eighteen miles.

125 The west end of profile strip number two shows a certain fall in the Desplaines River from the dam at Lockport to what was known as the Adams Dam in Joliet, and that profile shows the condition of the Desplaines River as it existed before the work was done on the Sanitary District channel. The dam at Lockport is not shown on this profile. The point from which I started the fall of the river is about opposite here, 33, and the Adams Dam was about 58, that is, there was a fall of about 25.8 feet in the river from a point in Lockport to the point where the Adams Dam existed in Joliet. The distance between those two points is about four miles.

I said that the old Ogden ditch running from Ogden's Dam in the Desplaines River to the Chicago River was a ditch originally used for the purpose of taking the overflow waters from the Desplaines River and emptying them in the Chicago River, and that was a ditch dug for the purpose of draining that territory through which the ditch runs. I do not know the exact date when the ditch was made. It was started at the time of Mayor Wentworth, though, I think. It is sometimes called the Ogden-Wentworth Ditch. I guess it was about 1845. It is very little used now. It is used occasionally when they overflow from the spillway, the water fills there, took off overflow water from the new spillway built by the district, that is, the overflow water fills the Ogden ditch.

126 I refer to the spillway in the Desplaines River just above the old Ogden's Dam. It ran into the lake, but at present it runs into our channel. It runs out along the length of the Ogden ditch up to a point where the little red line diverts from the Sanitary District channel to the west fork of the south branch and there the water would return from the Ogden ditch and the south branch into the drainage channel.

COUNSEL FOR DEFENDANT. Q. You don't know personally that the surveys from which this map was made are correct?

A. I don't personally know, but, of course, I have sufficient checks in the office.

That is the means by which the accuracy of the survey is verified and determined. I employed those on that map and found it correct.

All of the water of the Desplaines River enters the Sanitary District channel until we get down to what is known as the Bear Trap Dam in Lockport and is represented here by the upper end of a broken-black strip, and from that point down the water of the drainage channel commingles when the Bear Trap Dam is opened, and when the Bear Trap Dam is closed those waters commingle at the upper end of the 127 upper basin, where the yellow-brown and the red band and the black band all come together in the platted territory of Joliet.

So that wherever in that map the Desplaines River is shown in green and is parallel by the black strip representing the river diversion the green strip represents the old bed of the stream in which no water runs now, and they are separated by the canal and embankments, which are represented in various ways on all three of the strips. As I have stated that the scales on strip number one are government sections the top of the map does not represent the north. The north is very nearly on an angle of 45 degrees from a vertical line from the top to the bottom of the map. That is so done in order that by placing the rivers diagonally you get a longer strip of them on the plat.

Hillebrand,—Direct Exam.—Continued.

Q. You now produce at my request another map which the commissioners marked "Hillebrand's Exhibit No. 2." Mr. Hillebrand, this Hillebrand's Exhibit No. 2 is labeled "Sanitary District of Chicago map of Joliet and vicinity" with other legends. Was that map made by you in the like manner as in the case of Hillebrand's Exhibit No. 1?

A. Yes, sir.

I had them made in the office under my superintendence. The words "Chicago, Ill., December 22, 1896. Thomas F. Perry, Del." mean that he did the drafting. He was a draftsman working under my direction as Chief Draftsman. Below that a separating line and then again below that the legend "Improvement made where Sanitary District platted March

19, 1907." The drafting and platting of the improvements made by the Sanitary District were also made and platted under my direction and are both shown on this map. March 19, 1907, it was platted. The portion marked "New Channel of Desplaines River," also the notation "Main Channel of Sanitary District of Chicago," the improvement made by the Sanitary District between the upper basin and McDon-
128 ough Street and the levee embankment east of the Desplaines River.

The part which I have pointed out on the map as being improvement in the upper basin, as well as that showing the main channel of the Sanitary District of Chicago are enclosed in the red lines extending from the extreme right end of the exhibit down to a point shortly to the right of McDonough Street, then at a point above about Jefferson Street there begins a double red line, embraces a brown streak which extends from the left of Jefferson Street and past McDonough Street along the margin of the Desplaines River down Hickory Creek, which is labeled "Levee Embankment."

This exhibit substantially represents the conditions of things at points indicated as they exist today, as they have existed since some time prior to March 19, 1907. At the words" Jefferson Street" is a dotted line on an ark labeled "Dam No. 2." That dam has been removed.

Also near where the lines Wallace Street projects across the Desplaines River a little line marked "Adams Dam." That has also been removed. These dams were removed about 1898 and 1899. They were here in 1896 when the work was originally platted, the survey was made in 1895 and the drawing in 1896. Those dams existed at the time of the
129 survey. Between 1898 and March, 1907, the improvements were made which are delineated within the red lines.

Then there is at this time only one dam across the Desplaines River from above the upper basin down to the mouth of the river and that is Dam No. 1, which is the property of the State of Illinois.

Dam No. 1 as it now exists was reconstructed by the Sanitary District of Chicago under agreement with the Illinois Canal Commissioners and built under a consent decree in a suit between those parties.

In the upper basin just above Dam No. 1 are assembled the waters of the Despiaines, the waters of the main channel of the Sanitary District of Chicago and the waters of the Illi-

nois and Michigan Canal. They all three come into one common stream and basin.

This map is drawn on a scale of 400 feet to the inch, the top of the map is not north. The section line comes there to the east and west. This is the east and west, this side is north and south. I call your attention to the line near the right hand end of the map. That line runs north and south and the line running at right angles to it would be the other section line running east and west.

The waters of the Desplaines River run into the "New channel of Desplaines River." The old channel is indicated on the map in blue marked "Desplaines River."

Q. Suppose, Mr. Hillebrand, you indicate at the extreme right hand end of this exhibit the east boundary line of
130 the Desplaines River channel as it was before the Sanitary District channel was constructed and before the new channel of the Desplaines River was constructed. You put a mark a on the map and there is a firm blue line passing the apex of the a. That indicates the east boundary of the river channel?

A. The east bank.

Q. The east bank of the Desplaines?

A. Yes, sir.

Q. Now similarly mark the west bank of the Desplaines. (Witness marks as instructed.)

Q. You place a mark b and adjoining that is a double line. There are some lines quite close together lying off to the right between the a and the b. What do you indicate where I mark the c?

A. More or less of a bayou of the river.

Q. Now, Mr. Hillebrand, between the a and the b are a multitude of small figures arranged in columns and some of them scattered about. I note several of them between the a and the b. There is a 40 on the line which you marked as the east bank and there are 40.6 and 43.4, 43.7, 43.6. On the east bank of which is marked with the figure 40, and then along through the area of these channels are groups of columns of smaller figures ranging between 30 and 60 apparently in numbers. What do those little figures represent?

A. Soundings taken in the river by indicating the level below Chicago datum.

I think these soundings were taken under the direction of Mr. A. C. Schrader. He was in charge of the survey at

that time for the Sanitary District of Chicago, in 1895. They were taken under the direction of Mr. Schrader by surveyors employed by the Sanitary District of Chicago as a part of the work of the Sanitary District in reference to the construction of this channel down here, and this other work. It was
131 taken in the regular course of business and the reports of these soundings were made to me along with the other field notes and data of the survey for the purpose of platting, and they were checked and verified by the assistants in my office in the manner I have previously described and found to be correct, and then were platted as showing the soundings of the stream.

COUNSEL FOR DEFENDANT. How can you check the correctness of soundings?

A. We can. For instance, if one figure of something varies a great deal from the rest, we could send for a surveyor and ask him the reason. We had the experience, and having some profiles of the river we get an idea of the average elevation, and if the surveyor's report is a great deal different we ask him for an explanation.

He looks over his notes and sometimes a mistake is in the book. If we find it is in the book he resounds or recovers his work. There is a report sent in by the man in charge and, of course, he checks his work and turns it over to me.

COUNSEL FOR DEFENDANT. And that is all the checks you had?

A. Yes.

When they come to do the work here of excavating the channel of the Sanitary District and the new channel through the river they would have occasion to dig into the area and in other ways apply their tools and instruments to the very space where the soundings are delineated and in that way would have occasion to verify the soundings.

Q. You may state whether or not that was actually done?

A. I did not check these.

Q. I did not ask whether you did it but whether that was done in the work?

A. Yes, sir.

132 Q. And whether the quantities of material naturally disclosed any inaccuracies in the soundings?

A. I don't know that this plat was made long before that work was started. This improvement work was done since the plat was made. I did not check the soundings, I simply

showed the outlines. The soundings were on the plat before the new work was done.

I have delineated on the face of the printed plat as it showed in 1896 the work that has been done since 1896 without any reference to the sounding figures. I have gone right over the face of the sounding figures with the outlines showing the new work.

Those outlines showing the new work were put in there in 1907, so that here, for example, to the right of the point "Main channel" occur and a little below is an area in which are a lot of soundings written across it, which is now dry land.

Q. But as conditions existed in 1896 it represented the bed of the Desplaines River?

A. Not all of it.

Q. But where the soundings occur?

A. Yes, sir.

That is wherever there is a source of soundings shown on the white strip between the main channel of the Sanitary District of Chicago and the Illinois and Michigan Canal. It is now dry land, but in 1896 those soundings were in what was then the bed of the Desplaines River. Below Dam No. 1 where are the words "Lock 3" is a very pale blue strip going to the left labeled "Illinois & Michigan Canal."

133 The Illinois and Michigan Canal separates from the common flood of the Desplaines and the Sanitary District of Chicago at that point, that is at Lock No. 5 (instead of Lock No. 3). The lock at that point is at the Jefferson Street bridge. The figures similar to the soundings written on the face of the pale blue strip called the canal, a little to the left of Dam No. 1, and also again to the left below Dam No. 1 in the area marked "lower basin" were soundings all taken back in 1895, and they represented conditions of the bottom of the channel at that time.

In the area between the red lines in the lower basin and in the area colored deep blue for the lower basin here and there are apparent boundary lines which project out into the area on each side show the old bed of the river, islands, etc., as it was before the improvements were made to which I refer. That was the bank of the river as it was shortly prior to December 22, 1896, and the red lines represent the margin of the river as it is today.

Counsel for complainant then offered in evidence Hillebrand's Exhibit No. 2.

Objected to because it has not been shown to be accurate.

The WITNESS. The Sanitary District of Chicago caused this map to be made in the regular course of business at the time I have heretofore indicated and it constitutes a part of its records upon the subjects upon which I here delineate and show, and the Sanitary District makes regular and habitual use of this map as a correct map in its regular course of business in dealing with the territory here shown, and I have already stated that it was made in the same manner and from the same kind of reports turned in to me by surveyors in the employ of the Sanitary District, as I have testified to in regard to Exhibit No. 1.

CLARENCE H. PALMER, a witness for complainant, testified as follows:

Direct Examination.

135 My name is Clarence H. Palmer. My age, 40; my business, manager of the Racine Boat Manufacturing Company, Chicago Branch;—that is, a manufacturing branch which is engaged in the manufacture of boats, with the factory at Muskegon, Michigan, and one of the general distributing offices in the City of Chicago, and this Chicago branch is in my charge.

I have been in the business about ten years. I never was in the boat business until I went with that company, as a business. Before that I was in other lines.

Q. Mr. Palmer, are you able to tell us from your knowledge of the trade, of the manufacture and use of boats; when the form of boat which is called the "motor boat" first began to be used in the Middle West,—meaning thereby the states between the Allegheny Mountains and the Missouri River?

A. The term "motor boat" has been applied within the last four years, to what were then just launches.

The term motor boat is applied to a boat that is built for speed more than comfort. It is a boat that is long and narrow, and its whole object is for speed. The term "motor

boat" is taken from the automobile, and is only about four or five years old, as applied to boats, but the launches have been in existence for two or three years prior to the World's Fair of 1893.

136 That is entirely a speed boat, the same as a race-horse. The launches to which I referred were in use as freight boats. The construction of a launch generally for freight purposes would be a boat, say about 25 feet long, by 6 to 8 feet beam, built heavy, and with a gasoline engine of from five horsepower to 16,—varying according to the current that they wished to go against and the work they have to do; and those would be the smallest,—from that on up to larger sizes,—up to 100 feet long, and say, from 17 to 20 feet beam.

To find the tonnage that a boat would carry, you multiply the length of the boat by the beam and by the depth of the hull, and divide by 95. Take a boat 100 feet long and 20 feet wide, and multiply this together, that gives you 2,000, depth 2, gives you 4,000, divide by 95 and that would give you 42 tons.

A boat of those dimensions would carry that load in addition to carrying its own machinery, and the gasoline by which it is operated and its crew.

137 That boat would be a little out of proportion. A boat of that dimensions would be more than 2 feet in depth of hull.

The draft of the boat and the depth of the hull are two different things. The draft would be the amount of the boat below the water,—that would be 2 feet below the water, and that boat would necessarily be from 4 to 6 feet out of water, so that a boat of that description instead of being 2 feet depth, the hull would be at least 6 or 8 feet, and still draw 2 feet of water and travel on 2 feet of water,—so that you have got to figure on carrying more tonnage.

What is considered draft is from the lowest point of the boat, to about water line, where the water comes on the boat,—that is the draft of the boat. As to where the water line came with reference to the depth of the boat would depend upon the construction of the boat. In the tunnel boat, —the propeller,—there is a tunnel built up into the hull. It is more like the cast of your hand placed like that (in-

138 dicating), making a dome to keep the propeller in. When the boat is stationary, the propeller is half out of the water. As soon as the propeller is started up with the ma-

chinery, it lifts the water and fills this dome, and then acts the same as if the screw was so many inches under water. For instance, you had a 20-inch screw stationary, the propeller would only draw 10 inches of water, but as soon as the motion begins, why this cavity is filled with water, and she goes the same as if the propeller was more than 20 inches under water.

Those are a line of shallow draft boats, and they were first built in England for use on the River Nile. I don't know as I can give you the date when they were first built. It was prior to the World's Fair. We introduced it in this country, I think somewhere about 1898 or 1899,—I would not be positive. I am manufacturing boats of that type now. The power is generated by gasoline engines.

The gasoline engines are two types: the 2-cycle and 4-cycle. The smaller engines and boats used are generally the 2-cycle type,—that is, up to about 10 or 15 horsepower. The difference between the two engines is: the 2-cycle has an explosion at every revolution of the fly-wheel; the 4-cycle has an
139 explosion at every other revolution of the fly-wheel. The effect of this explosion in the matter of producing power is that the explosion is a mixture of gasoline and air; that is supposed to be 1 of the gasoline to 8 of air, which gives the best mixture, and this is exploded in the cylinder by an electric spark. That is generated by batteries,—generally storage batteries, or dry batteries, or even dynamos are used on some. This forces the piston down and the momentum of the fly-wheel impels the piston to the top of the cylinder, where it compresses the gas, to the next explosion; and this is continued.

These freight launches and boats are in use all over the country on rivers and lakes, especially on the smaller rivers of the country and on canals.

Relative to the manufacture of steam vessels,—from the time that the freight launches came in, the small gasoline boats have had the greater increase in use, at a ratio of, I should say, pretty near 100 to 1.

In this manufacture and use of the steam vessels, from the time it began, it progressively grew larger, and the use of the steam vessels was made burdensome in the United States by having steam boiler inspection, and a licensed pilot and a licensed steam engineer, examined under the rules of

the Federal Government. These burdens do not apply to freight boats, below 50 feet.

The burden of the machinery and fuel to be carried in the motor freight launch, I don't think takes up 20 per cent. as much room as steam. There would be a net saving of 80 per cent. relatively on the items of machinery and fuel carried.

From my acquaintance with the business and the use
140 of boats with the coming in of the freight launch and motor boat, there has been a decided increase in the amount of navigation and commerce carried on the internal smaller waters and streams.

Gasoline engines have been adopted by a great many canal boats through the country, that have taken out steam; and also they have taken out steam from some of the smaller freight boats and installed gasoline on the rivers.

The steam turbine engine is a steam engine, which itself revolves with successive discharge of steam from small pipes, —the circular motion taking the place of the reciprocating forward and back motion. The turbine itself has not been put in on the small launches.

Q. That is a matter of the larger craft, as far as you are concerned?

A. Yes, sir.

Cross-examination waived.

The signature and subscribing oath of the foregoing deposition were waived by stipulation of the parties hereto.

JOHN M. SWEENEY, a witness for complainant, testified as follows:

Direct Examination.

141 My name is John M. Sweeney. I live in Chicago. My business is mechanical marine engineering. I am interested in the "Outing Boat Company" of Chicago, who build motor boats, in the "Howard Ship Building Company" at Jeffersonville, Indiana, and in some allied properties with that concern and repair plants on the Ohio River. I have been building river boats particularly since about 1876 or '78. Our steamboats have been used generally on the western rivers of the United States, some in South America, some in Mexican rivers, but generally on the western waters; the

waters that flow into the Gulf of Mexico, as they are classified. I think I have built several boats that have gone
142 into the St. John's River in Florida, and some in the Chattahooche River, which flows into the Gulf of Mexico.

I am acquainted with the type of boat known as the "Naphtha Launch." The strictly Naphtha Launch, according to my best recollection was used beginning about 1880. In my answer I am distinguishing between the Naphtha, and present Gasoline Launch. Generally the Naphtha Launches were small motors, displaced or substituted for steam power, or was used in boats where steam power was hardly applicable. The naphtha power later on was improved upon by the Internal Combustion Motor. The Naphtha is not an Internal Combustion Motor, and practically to-day has displaced that. The boats for quite a while on the lagoon in Jackson Park, until last year, were Naphtha Launches.
143 Several of them are still, although they are now beginning to introduce the Internal Combustion.

The Internal Combustion Motor is a motor where explosive gas or something else is ignited in the cylinder itself. The motor that is used is generally known as an automobile motor. This type of boat came in practically seven years ago from this time, I should say. I am not speaking of the experimental list. I am speaking of the time.

I think the first boat of that kind in Chicago was exhibited in the Auditorium around on Congress street in 1900 by a Detroit firm—Bloomstrom.

From that time to the present time, the Internal Combustion Motor has multiplied very fast. Within that eight-year period, the number of Internal Combustion Motor boats in use, on the best data that is perhaps available or obtainable, reaches about 200,000. There are about 200,000
144 of them now. They are used for all purposes.

The inspection law draws a line between boats of fifteen tons or under that. Boats of over fifteen tons require inspection and licensed officers; boats below fifteen tons do not, unless they are used for purposes of hire or carrying passengers for hire.

The old-fashioned steamboats which were in use in 1880 required a licensed pilot and a licensed engineer, as well as inspection of the steam boilers, where they came under the inspection service. The test which brought them within the inspection service was "a boat propelled, in whole or in part,

by steam operated on navigable waters of the United States." Recently that language has been construed to mean that any boat propelled by motor of any kind, shall be construed as propelled by steam. My impression is that that is an edict of the Department. I do not think it is in the form of a statute, as yet, but they are trying very hard to get it there.

Prior to the making of this ruling, a motor boat did
145 not need to have a licensed engineer, under the navigation law, because the law applied to those boats that "were propelled in whole or in part by steam." The boats that were propelled by internal combustion or gasoline, are not steam vessels. They do not use steam at all.

The cost of inspection itself was not burdensome, but the growing requirements of the Bureau as to outfit and as to the numerous life-saving apparatus and life boats, as applied to the licensing for instance, to a certain extent as applied to boats navigating shallow streams, has been a great factor in diminishing the use of steamboats in those streams. These burdens have not, up until this time, been applied to motor boats and gasoline craft. I think they will from this time on, perhaps.

Well, speaking of the last four or five years, which is
146 the best pulse of what has been taking place on the Ohio River, I should say roughly, without having statistics, but simply as a matter of observation, that there have been four or five, some small, gasoline or internal combustion boats built and put in commission, to one steam-driven craft, and the Ohio River to-day is developing an awful big business along its shores by the use of gasoline boats towing very light barges that can be left at one spot or another, and in that way they use very much smaller fuel than a steamboat could use. The saving in the motor of carrying heavy machinery and fuel enables these motor craft to operate shallower waters, and they are lighter boats, too, generally, lighter draft boats.

I have never built any boats for the Chattahooche that were smaller than 150 feet by about 26 or 28 feet wide. These boats would draw, without any load in them, about 20 or 22 inches. Not evenly, all over, because a boat of that type, if she is drawing 22 inches at her stern, she would
147 probably draw 18 inches forward. A boat of that kind, where you are carrying cotton down the Chattahooche

River would be loaded deep in the vessel, so if the bow, was very much deeper, would be loaded to above five feet. A boat of that character would carry probably 150 tons.

To describe in the normal construction as to length and breadth and depth of hull, as distinguished from the draft of the water, a boat carrying 50 tons, independent of weight, would be probably 100 feet long by 20 feet beam—I am speaking of a steamboat now—she would draw, without any load in her whatever, about 18 inches—from 12 to 18 inches, depending upon how much passenger accommodation. If no passenger accommodation, 12 inches. It would be possible to construct that boat on a 12-inch draft, and a boat of that
148 dimension would carry, for each foot of displacement, 50 or 60 tons; 50 tons, any way.

I do not know of any boats as large as 100 by 20 feet, gasoline driven, that have been put in commission, but I was on a boat the other day which was 85 feet long and 15 feet wide, that was driving light, about 10 inches at the deepest end of it, and her average displacement was probably 8 inches; average draft, I mean. That boat would carry, exclusive of her own weight, about 30 tons to the foot; I mean 30 tons to the foot of displacement; to the foot of immersion; each foot of loading. As I say, that is only approximate, because I have used 60 pounds as the weight of a
149 cubic foot of water. It is really more than that. If the boat is 85 by 15, there would be 7,500 cubic feet of displacement for each foot of immersion, which in round numbers is 37½ tons; call it 35 tons. That boat on two foot of water would carry 30 tons; more than that, a little I judge.

With the incoming of these internal combustion motors, commercial navigation upon the shallow draft stream of the interior has increased undoubtedly, particularly if pleasure purposes are included. They are also used for commercial purposes. I know that the steamboat men on the Ohio River are kicking a whole lot about them getting into the short trade. The expense of operation, as compared with steam vessels is perhaps less, considering the adaptability, and I doubt very much whether the fuel consumption itself is less. I think the fuel consumption is in favor still of the steam craft.

150 The installation cost on a motor boat, in small sizes, cannot be compared with the installation cost on a steamboat, because a motor boat is available where the steam

would not be, and I think the converse of that proposition is true, but on the very large sizes the steam installation is the only available one. It is the middle field in which you can make comparison of the cost of installation. A motor boat could be installed on shallow water, where it would not be possible to install a steam vessel. There is a for-
151 mula for computing the displacement necessary to a given load on a shallow draft stream.

Assuming that a cubic foot of water weighs 60 pounds, as the value which is used in this calculation which I made here a little bit ago, after the boat had furnished its own buoyancy—provided for its own buoyancy, or its own displacement, each cubic foot of water that was displaced further by further immersion, would mean 60 pounds of carrying capacity. If the cross section of the boat, or the cubic displacement of a boat for each inch or each foot is known in cubic feet and cubic inches, it is a little mathematical problem to work that out. If you multiply the length of the breadth and then by the depth making cubic contents, and multiply it by 60 pounds for each cubic foot, it gives you the weight of the water displaced by that much immersion.
152 That causes that much additional immersion; or to find the reverse proposition, the amount of the boat displaced would give you the weight of the boat itself, without the load.

If a boat had two water lines, one where it was empty, and one near where it was higher, where it was loaded, the length by the breadth multiplied by 60 would give you the number of pounds or load that would be represented by the additional foot of immersion.

A tunnel-built boat, is a term that is applied primarily to a boat designed by Thorneycroft in England, for the purpose of applying a propeller wheel, so that it would not extend below the bottom of the boat. It was first done for some of the very shallow draft boats which Thorneycroft and Yarrow, and other English firms, built for African rivers, such as the Nile and Zambese. Some of these boats, which were called "Mosquito" boats were as light as 8 inches.
153 They would carry a great deal of freight. They are a very large, wide boat. In place of having a propeller wheel extend below the bottom of the boat, it would set up. The stern of a boat built with a tunnel in it, so that the water would rise as the boat went along, the water being under compression, under the bottom of the boat, would rise

into the tunnel compartment and give the wheel water to act upon. It was put there so that the boat could pass over places without injury to the wheel where she could be floated. It has been applied for use on shallow streams.

There have been two boats of that character built for the Ohio River. One is owned by the government, towing barges. They are Twin Sister boats. The other boat is just completed, not in commission yet.

154 In case of the tow boat, they carry no load except their own fuel, but they are loaded to the capacity of the river, at certain times at least, with fuel so as to carry the maximum of the barges which they tow.

In connection with the Missouri River, I have just completed designs for a couple of steamboats upon the Missouri River to be used between Kansas City and St. Louis. The estimate of the draft of these vessels will not exceed 22 inches at the stern, and 18 inches forward, for the light draft, carrying a displacement of practically 500 tons. The boats themselves are 240 feet long and 44 feet wide, and the boat will carry on her maximum load craft, which would be 8 feet forward and four feet aft, 1,200 tons, in addition to the weight of the boat itself.

155 *Cross-Examination.*

The tunnel boats in use in the United States other than government boats to which I have referred, are confined, so far as my knowledge goes, to small boats. There are several of that kind. There have been in the last four or five years, well I do not know how many, but I know that there have been more or less pleasure boats. Perhaps they have been used, to some extent, commercially. The government boat, that is the tunnel boat, the "Ramsey," of about 26 by 120. The other boat is probably 28 or 30 by 150. In the ordinary motor boat used for commercial purposes, the propeller does not extend below the bottom. I will have to explain that answer, because the boat loaded should be deep at the head, and in the flat stern boat, particularly, the scheme is to

156 (drawing diagram) that being the water line, this is the top of the boat. Now assuming that the bottom, as is shown there, is parallel with the top of the water, the wheel is above the bottom. That is the practice of the company I am engineer of in building motor boats.

Thereupon it was stipulated that the witness might furnish a blue print which would contain expressly the diagram in accurate form, and when labelled with his initials, the same might be admitted as an exhibit in connection with the witnesses' testimony. Said blue print was received in evidence, Appendix, p. .....

157 The object of making that diagram is that the bow of the boat goes down in the water very much further than the stern, and that as the propeller wheel is set in the stern, the bottom of it would not be below the bottom of the bow.

I do not mean to say that all boats are constructed in that way, but that is the favorite construction to-day, in what is known as the "Torpedo" stern boat. That is the construction used very largely for commercial purposes. It is the change, and it is really the recent development of all there is in boat construction, that when the boat is being propelled the stern of the boat does not settle.

The wheel is always immersed to its full depth approximately, so it may have a little greater depth than that when the stern, is loaded under, but the loading always intensifies that forward movement where the boat is.

158 *Redirect Examination.*

It is pretty hard for me to say when the tunnel construction came in. It certainly was within the last twenty-five years. We had a congress of engineers here in 1893—World's Fair year. I remember at that congress there was a paper on the tunnel boat. All the engineers were not conversant with it. I remember that the paper went on to describe an experiment that had been made by putting a half inch by three inch gas pipe in the top of the tunnel, and running it up through the deck of the boat in order to determine how much pressure there was in the tunnel, as to how high the water rose in the top. I have the published proceedings of that meeting, but I could not put my finger on them.

159 ROBERT E. ORR, a witness for complainant, testified as follows:

Direct Examination.

My name is Robert E. Orr. My business is assistant chief draftsman in the employ of the Sanitary District of Chicago. I have occupied that position since August 4, 1906. I have been in the surveying business since 1880. I am a graduate of the University of Illinois. I have tracings here and part of the records of surveys in the possession of the Canal Commissioners of the State of Illinois, and the document now shown me marked "Orr Exhibit No. 1, April 14," which appears to be a blue print, is a blue print of the index page of plat book No. 2 of the records of the Canal Commissioners office. I found it in the records of the Sanitary District office. I took it down and had the survey attached, which appears here, by John M. Snyder, acting secretary of the Canal Commissioners of the State of Illinois. It is a copy of the general index plat showing the route of the canal and the location of the Desplaines River and its tributaries and the old now abandoned towns of Kankakee, Du Page, Channahon, Joliet, Lockport, and along and touching the Desplaines River as it appears in the original record of the survey of the Canal Commissioners.

160 Thereupon the complainant offered said index plat in evidence. (Appendix, p. .....)

Objected to as incompetent, irrelevant and immaterial, and no sufficient proof of its correctness.

Referring to the document now produced marked "Orr Exhibit No. 2" is an exact tracing of the index page of plat book No. 2 in the Canal Commissioners office at Lockport. It is a duplicate made by the blue print process of the original.

Orr Exhibit No. 2 when connected with Orr Exhibit No. 1 exhibits a complete showing of the survey for the canal from the beginning of the Illinois and Michigan Canal at Bridgeport down to and beyond the end of the canal in Township 34 Range East, the two joined together where the section lines and township lines show that the Desplaines River is represented as continuous stream. I caused that to be prepared and certified in like manner as Exhibit No. 1.

It represents the recorded survey in the custody of the

Illinois Canal Commissioners and the route of this canal as originally constructed with the old towns bordering along the same, Keepotau, Athens, Desplaines, Harmonville, Summit and Bridgeport. Exhibits Nos. 1 and 2 show the Desplaines River and the canal from the mouth of the Desplaines River up to Summit in Town 38, Range 12 East.

The continuous white line beginning on Exhibit No. 2 at a point called Bridgeport and running diagonally southwest to Summit and then southwest down through and near the river, and then beginning on Exhibit No. 1 in Section
161 25, Township 37, Range 11 East, and running west, southwest, then southerly, and then crossing the river in Joliet and running west by south and west on the north side of the river through Township 34 N., Range 8 East, represents the Illinois and Michigan Canal.

Thereupon complainant offered said Exhibit No. 2 (See Appendix, p. .....) in evidence.

Objected to. No sufficient foundation laid for its authenticity.

Orr Exhibit No. 3 is a blue print copy of the record plat book No. 1 showing the junction of the Desplaines River with the south arm of Mud Lake in Section 12, Township 38, Range 12 East. It is a true copy of the original record in the possession of the Canal Commissioners. I have seen the original record myself, compared every item and every note.

There appears to be a slight jog where the words "outlet of Mud Lake" appear as if the two lines which embrace the words "outlet of Mud Lake" do not quite correspond with the words "south arm of Mud Lake." That is an error in the copying. In the original they do join.

Orr Exhibit No. 4 shows the authorship of those records plat books Nos. 1, 2 and 3 in the State Canal Commissioners office. It is an exact copy of the original. I have personally compared it. The note "This piece of land was once enclosed by a ditch which has since been abandoned and is now a common, June 5, 1847," which appears on the foot of Orr Exhibit No. 4 embraced in a bracket, is an exact copy of the corresponding note on the original.

162 Orr Exhibit No. 5 is a copy of page No. 7 plat book No. 1 of Canal survey of Section 15, Township 37 N., Range 11 East. I have personally compared that with the original and it is a copy as to notations and everything. On the left of said exhibit in the notation "N. B. full lines on

margin of river were run by N. E. walls in 1821 and line of deeds on margin of river on N. E. & S. W. Bayou is the meander L. of the survey of the peninsular of 1846, A. J. M. by order of Gov. Sur. Gen." The initials A. J. M. are those of A. J. Matthewson, the well known surveyor of the canal. I personally compared all of these Orr Exhibits which I have produced with the corresponding originals in the custody of the Canal Commissioners and found them to be exact copies.

Objected to on the grounds already specified. Exhibits 4 and 5 further objected to on the ground that the certificate of John M. Snyder that appears attached thereto is incompetent evidence and ambiguous and uncertain. (Said exhibit appears in the Appendix, p. .....)

Thereupon counsel for complainant explained that there was a vacancy in the office of the Secretary of Commissioners and that John M. Snyder was the acting secretary in the actual custody of the records.

Thereupon complainant offered in evidence from the public volume of Report of the Canal Commissioners of Illinois to Governor John R. Tanner, December 1, 1900, being the official print, Springfield, Illinois, Phillips Bros., State Printers, 1901, the paragraph on page 235 reading as follows:

"The Matthewson Survey of 1847 & 1848 gave the width of the canal and the lines of the reserve the entire length of the canal."

163 *Cross-Examination.*

I compared all the figures with the plats in the office of the Canal Commissioners and scaled in a great many places to test them and they do not vary in time more than a fiftieth of an inch so that they are exact copies of those records and I have shown the authorship of them in that affidavit also in this report.

The signatures and subscribing oaths of the foregoing witnesses to their respective depositions were waived by the stipulation of the parties hereto.

164 GEORGE B. FOX, a witness for complainant, testified as follows:

Direct Examination.

My name is George B. Fox. I live at Wyoming, Ohio. I am engaged in the manufacture of paper. Wyoming is located in the County of Hamilton, about twelve miles north of the City of Cincinnati. The name of the business concern is known as the Fox Paper Company. The mill is located in Lockland and is adjacent to the Village of Wyoming,
165 through which the Miami and Erie Canal, that runs from the Ohio River to Lake Erie, runs. We make use in our business this canal in the transportation of raw material to the mills and of the finished product from the mills. There are four of our mills that are located on the banks of the Miami Canal. The canal is one of the principal means of transportation by which raw materials are brought in and the product carried out from the mills. I became interested in these mills in the year 1868 and have continued operating them ever since, then continuously since 1868 I have been making use of this waterway to get into the Ohio River for transportation. Steam was used as a method of operating canal boats on that canal on perhaps three or four occasions by other parties and myself since that time, all of which, however, proved to be a failure. When the so-
166 called electric motor, or the Miami and Erie Canal Transportation Company intended to engage in the business of the transportation of boats, they bought up all of the boats they could get hold of and proceeded to lay down a track under a franchise obtained from the state, claiming that they would be able to operate the boats by motor power and succeeded in getting a track laid down from the City of Cincinnati to Dayton before they undertook to do any business, then they began to tow boats with this method and in a few weeks pronounced it a failure. That was by means of a motor running on a railroad track alongside of the canal. It was an ordinary railroad track that was made very heavy and strong, as heavy as any railroad, I guess, operated in Ohio.

But the difficulties in the transmission of the power and the making of the connection and the friction which generate and other causes rendered it impracticable. They themselves admitted that it was a failure for several causes. In the

construction of the track they occupied the towpath which rendered it practically impossible to use horses and mules.

I learned of a new method of propulsion, sought the patentee and arranged with him for the use of his method along the canal from Dayton to Cincinnati. That method
167 was known as the Coen System of Propulsion.

At the trial of the said cause, counsel for complainant offered in evidence a certified copy of the United States Patent No. 733010 for the propulsion of vessels, being the Coen patent referred to by said witness Fox.

Objected to as incompetent, irrelevant and immaterial. Objection overruled, and said document was received in evidence. App. II, p. 3891; Trans., p. 5860; Abst., p. 1725. (For copy of said exhibit see Appendix, p. .....)

An opening is cut into the bottom of the boat of the size, we judge 30 inches wide and about 22 feet long. Over this opening we construct a magazine that was 30 inches in the center and 30 inches wide. From the high point it proceeded down to the bottom of the boat, at the ends it is a semi-cylinder placed at an incline at the bottom of the boat, in the center of which cylinder we placed a 28-inch wall with three flukes, ordinary propulsion wall, and to operate it had a gasoline engine from the outside with a shaft running through the shelf with the ordinary modern combustion gasoline motor. I have a photograph of the first vessel that was operated with this magazine and tunnel. The picture marked "Fox Exhibit 1" is such photograph. It is a photograph of the internal appearance of the first boat that was constructed by the above method. This semi-cylindrical elevation
168 which projects upwards running backwards from the lower right-hand corner of the photograph is the magazine in which the wall was placed. That first boat was constructed and built in the summer of 1903 or '04. I have been using boats of that type in the transportation of the raw material in and of the finished product out of my factory from that time to this. The boat represented in Fox Exhibit No. 1 had a capacity of from 50 to 60 tons. The horse power in this boat was 14 horse power. The boat light and without a load would operate on about 10 inches of water and we
169 could float it down to four feet of water easily if we had the water in the canal, but unfortunately the water had been permitted during the time the electric motor people occupied it to fill up with mud, so that we could not

safely load it to exceed two and one-half feet going up stream, pretty nearly three feet going down stream.

COUNSEL FOR DEFENDANT. I object to that answer and move to strike it out as not responsive to the question because the question was "in what depth of water would the boat float" and the witness answered what the draught of the boat was.

COUNSEL FOR GOVERNMENT. Well, you may state whether or not it was operated in the respective depth of water which you have mentioned.

A. Yes, it was.

When there was 10 inches of water in the canal we could operate the boat. The draught of the boat when it is not loaded is about 9 or 9½ inches. One of the objects of the
170 magazine or tunnel in the bottom of the boat is to enable the propelling wall to operate without making a requirement of additional depth of water with the wall itself. Some of the other objects are to avoid striking a rock or boulder or a tow line back and forth in the shallow water of the canal, and if the wall is about to hit the bank or strike some obstacle and the wall being up in the magazine is far from any object of that kind, and we never have had any trouble excepting when a timber or something that the boat would fasten that would be held in the ground and would fly up. The magazine would not keep the boat from striking the obstructions but would keep the wheel from striking obstructions.

The length of the boat represented in Fox Exhibit No. 1 is 80 feet. Those we built later, I think, are 81 feet and
171 the breadth was 31½ feet. We had them built; some were three, some were four feet high, the hold, and others were 4½, and I think we had one built five feet high. These boats that were built five feet high could all of them operate on 10 inches of water. The actual displacement of them was 9 or 9½ inches. The photograph produced marked "Fox Exhibit No. 2" is the outside appearance of said first boat.

The other boats in appearance, however, are practically the same. It is from the same model except that the length is about a foot longer. I may say that this boat was one that I had built in Buffalo about twenty years prior to the time that the method of propulsion was put in this boat. We
172 had been operating it for about twenty years when the new magazine propeller was put in in 1904. The boat

was first built in Buffalo in 1884 and the type was that of boats in use on the Erie Canal. It was built by the firm of the name of George Notter & Son, who are builders of boats on the Erie Canal but who never built an iron boat until they built this one. This boat is an iron boat. The latter boats are steel.

At the time I had this boat built one of our manufacturers also had a boat built, and about the time that we adopted
175 this method of construction the parties who operated the other boat had used it pretty roughly and thought it was all worn out and sold it for old scrap. I bought it and put in a new bottom. I figured that it was about as good as new and then put in this method of propulsion in this boat, and after operating it two years I made a contract with a concern in Cincinnati for the construction of six more, all of which were built after this model and completed, arranged for propelling it in the same way as this. During the past summer the state is rebuilding the old lock between Dayton and Cincinnati and we could only at times operate them between certain points when we could get the water in the canal, but we are continually operating these eight boats from Lockland to Cincinnati. This Fox Exhibit No. 1 shows the general lines of the boat and of the magazine propeller which are common to all of the eight boats, with the exception, of course, that the height of the iron works here, is six inches to a foot greater or less than in others. The wooden decks are all the same.

174 The capacity of the boats all run about the same. They are made of uniform size to conform with the construction of the locks, the width and length. This system of propulsion reduces the amount of trouble not from rocks particularly, but from the canal filling up with formation of bars and silt and mud in the bottom of the canal.

We never operated by propulsion before. They were all pulled by horses before that and had trouble at that and that trouble has been greatly reduced by this system.

175 The propeller is about an inch above the level of the bottom of the boat, between an inch and a half to two inches above the bottom of the boat.

We found that when we put the boat in the dock and the machinery in stall that when the water came into the dock air prevented the opening to be filled with water so that it was a mass of air in the air chamber instead of water and the

wheel turns around without even striking water. The advantage of the system is that we have a little air pump and we extract air from the magazine, pump it out and water fills up in a column about six or eight feet high which the inventor claims gives us a pressure of six or eight feet of water on top of the wheel. At any rate we had the wheel sub-
176 merged and the force to throw the boat in four inches of water we could have an eight foot pressure according to the claims of the inventor and I don't see why his claim is not correct. It has proven a practicable commercial method of operating freight boats for the transportation of freight to and from my factory. It is much more practicable than the mule principle and much more desirable to operate. We get better hands to work them and if a stream comes or the trip is completed that boat is tied up and we have not a lot of tired or sick mules to take care of or tow lines to buy, and it ends.

Since the operation of these boats the railroad people have started to bump up against us pretty strong and they have since that time made a rate of $5.00 a car into the city when they used to charge about $30.00. We ship our stuff by
177 rail at $5.00 a car when we have a carload, but when we have less than a carload we take it by these boats for perhaps less than half of what they would charge for less than car lots. This $5.00 rate has taken the place of the $30.00 rate, which was in force until we installed this system of internal combustion motor boats, and their object and use is entirely the transportation of freight. We have no other use for them and they are in continuous use.

Thereupon complainant offered separately Fox Exhibits Nos. 1 and 2 in evidence in connection with the testimony. (Atlas, pp. 3947-8; Trans., pp. 6563-5; Abst., p. 1924.)

(Said exhibits, Fox No. 1 and No. 2, appear in the Appendix, p. .....)

Cross-Examination.

I said these boats drew nine inches of water with no loads in them and that they could operate in ten inches of water now when they had a load such as would make them profitable to operate for commercial purposes. We could not oper-
178 ate them profitably at 15 or 18 or 20 inches, but I believe that we could operate them profitably in two feet of

water in addition to the nine inches draught. We have a trade that we could operate them profitably at less.

Q. What I am trying to get at, Mr. Fox, is how much water would be necessary to operate these particular boats profitably for commercial purposes on that canal?

A. That would be a very difficult matter to answer. We have certain trade that we could operate them profitably at even a trifle less than that, such as what is known as wadding and padding, where we get a very high rate per hundred, in other words, we will load a boat down to 50 tons and
179 down to 2½ to 3 feet, and we may not perhaps get quite so much for a load into the city as when we load it with the wadding and padding where the freight rate is from three to four times more per hundred. There are grades of freight, you know, that you get more for and groceries again coming up are of a light nature, for which we get a low rate.

If they are loaded with heavy matters, such as paper or starch or soap or candles, we could put on from 50 to 60 tons if we have water to float them in. The water required to operate the boat depends on how heavy you are loaded, I should say, about three feet of water with a heavy load. That is not in addition to the 9 inches draught and we could load a boat full of light material and it would probably not go down in the water more than two feet in all.

180 JAMES O. HEYWORTH, a witness on behalf of complainant, testified as follows:

Direct Examination.

My name is James O. Heyworth. I was sworn to testify and did testify before the Legislative Committee last December. I was subpoenaed yesterday to appear here this morning, and have come in obedience to the subpoena. The subpoena required me to bring with me the plans and specifications for the dam of the Economy Light & Power Company, in course of construction, in Grundy County, Illinois. I did not bring them with me, because a counsel for the Economy Light & Power Company advised me not to. The counsel was Mr. McKeever. I think it was Mr. Buell McKeever, of the firm of Isham, Lincoln & Beale. So far as I can recollect, this is the subpoena that was served on me.

Said subpoena was thereupon marked Heyworth Exhibit 1 and offered in evidence.

My business is that of a contractor. I have been in
181 that business since 1890. At present I have a contract with the Economy Light & Power Company for doing some work on a dam, in the County of Grundy, near the mouth of the Desplaines river. I have a copy of that contract, with the plan and specification attached, but not with me. It is at my office at Michigan avenue and Harrison street in the City of Chicago. That is where the set of plans are. There is no physical inconvenience about bringing the plans, if I had not been directed not to. The date of the contract is July 15, 1907. I first learned that there was such a piece of work to be done, by receiving an invitation to bid from Daniel M. Meek, consulting engineer, Madison, Wis. I believe he was the consulting engineer of the Economy Light & Power Company at that time. He so held himself out to me. I have not that letter with me. That stated when the bid should be in, but I don't know when. My recollection is it was longer than ten days. I had about four weeks to prepare the bid for it.

I knew of the work before, through Mr. Munroe. I could
182 hardly say I had been in consultation with Mr. Munroe before that, except that he asked me if I would like to bid on the work, and I said I would. That is, Mr. Charles A. Munroe. I knew there were four or five other bidders; I don't know how many. The length of the dam called for by that contract, was in a way problematical; it would depend upon the development of conditions there somewhat. You realize that there were a great many dimensions connected with this power plant. From water's edge to water's edge, I should say it was in the neighborhood of 280 feet. That would be from the lowland. You see the channel in the river is indicated on the map. That would be the width there. That has been changed a good deal though since that (Hillebrand Ex. 3 map was made. Those banks are not now where they were on that map. This side is washed out considerably. By

"this side," I mean the south side. I think the eleva-
183 tion of the proposed dam was 77. And that is minus 77 Chicago datum. Without referring to the plans, I could not give the height which the dam would have from the surface of the ground, at the bed or bottom of the river in the center of the river, to the crest of the dam, in feet and inches. It was in the neighborhood of 18 to 22 feet. My best recol-

lection now is that it was about 21 feet. The contract specified a time when the work should be completed, which was September 1, 1908. I can't tell you whether there has been a change in that contract in that respect. There has been in my attitude. Before the Legislative Investigating Com-
184 mittee, I said, "well, I think I have got four or five months' time on it." That was correct as I understood it, that is, from my standpoint. I have had no such intimation from the Economy Light & Power Company, but it would be a claim for delay or extension, which I would expect to substantiate. My testimony was given on the 26th day of December, 1907. I filed a claim or made a statement of my position, demanding additional time. I have written letters explaining the causes of the delay. The letters to which I refer were written before this suit was begun, and had no reference to the injunction suit. I began the actual construction of the dam in the early part of September, as close as I can recollect now. On the 26th of December, 1907, the
185 rock excavation for the power house and the dam was about one-fifth done. I had not at that time begun work on any of the concrete or masonry. I was merely excavating the bed of the river and banks where the power house was to be located. I had at work there in December, about 180 men down to 130; it varied. I think I received notice of the injunction having been issued in this cause, on the 31st of December, 1907, promptly upon its being entered. I couldn't tell whether I did or not. Since then we required a break in the dam, and made other repairs on the old levee, that was there when the work was stopped. That was in the cofferdam and the earthen levee.

The cofferdam is composed of a row of 4-inch sheet piling, with 3 wales opposed about 10 feet away by another row of sheet piling of heavy wales, tied together with tie rods, the same being filled with earth and rock. It was filled with
186 earth and capped or bedded with rock on top, so as to hold down the dam. This would stand a head of water of about 12 feet. It was not completed at the time we had the big flood, and due to an extra amount of water which the drainage board let through the bear trap dam,—to the best of my knowledge and investigation, I would say a part, about 110 feet of the cofferdam running parallel with the level was, forced in and laid on its side, the result of which was a filling up of the outer cofferdam, and later, due to a washing of

the intercepting levee, the filling up of the inner cofferdam too. What I say about action by the Drainage Board in letting an extra amount of water go through the bear trap
187 dam, is the result of an investigation that I made during the time of its action. I found some extra water and I made some inquiries and reached that determination of the matter, that that was what caused it.

(Counsel for complainant moved to exclude from the answer of the witness, the opinion and conclusion as to the causes.)

Q. Describe what was done thereafter at this work?

Objected to as immaterial.

A. We repaired the cofferdam referred to, replacing it in about the same condition as it was prior to the accident, also repaired the earthen intercepting levee, and two upstream and downstream levees, which had been cut up by the flow of water, and took our machinery equipment and tools out of the cofferdam pits, and placed them on high ground for storage. The work to repair the cofferdam and levee was done with a very small force of men. It took about 45 days. It could have been done with the force of men we had there
188 at the time of the accident in about a week. We had from 8 to 25 men at work on it. The cofferdam was reconstructed by me, was about the same as before the break, except that we left out the inner row of sheet piling. It was neither higher nor lower than it was before; practically the same; it may have been an inch or two, something like that, but it was practically the same type dam as it was before.

Q. Was there anything else that you did upon that work or that was done by the contracting force or by anybody form that time to this?

Objected to.

A. There was some work done on the levee at the Smith bridge just above Channahon. A levee is a barrier composed of earth or other suitable material, which is raised above the natural elevation of the ground, for the purpose of either impounding water, or keeping the water from overflowing other territory than that confined by the levee.
189 The levees referred to, near the mouth of the Desplaines river, are temporary levees erected for the purpose of prosecuting the work. They are in the nature of a cofferdam made of dirt. I refer to none of the permanent levees when I speak of the levees at the site of the work. Two of those

levees are at right angles with the course of the stream, and one of them is parallel with the course of the stream.

Q. What did you do to the levees which were at right angles to the course of the stream at any time since the happening of that wreck?

Objected to; immaterial.

A. Some of the levees which are at right angles with the course of the stream, had a flow of water over the top, which caused a cut and washed out some of the top of these levees. This was refilled with dirt, and some rock was placed on the top of those earthen levees, so as to hold the dirt as far as possible against future floods. Its condition, after I had caused that work to be done, was practically the same as was its condition immediately prior to the break, with the exception that it had a little more rock on it afterwards than it had before. We made some parts of it stronger when we were repairing it, than they had been prior to the break. There is a great deal of it that is practically the same as it was before the break. We hardly went to the extreme of making it enough stronger than it was before, to avoid possibly a repetition of that experience. We repaired the break with a small force, and tried to make it as good as we could without much planning for the future. I was cutting 190 things down as economically as I could at that time. We always hope when we fix a levee, to make it somewhat stronger than it was before; but we cannot tell. We had no definite plans of strengthening that levee; that is, no broad plan of making it a different size or stronger levee. We simply repaired the breaks in it, that is all we did. A cut sometimes has to be strengthened with rock, where an original levee don't need that rock. It is a new fill and it is soft and has got to be protected with rock. I don't think the levee there to-day is as strong as it was when the injunction was served. As a rule, a repaired levee is not quite as strong as the original levee. The initial strength of an unbroken levee is somewhat greater than that of a repaired levee. We didn't plan any such strengthening, as that of resisting any similar flood. I had a very small gang of men there, and we tried to hold it down with as small an expense as we could. The coffers and levees have since been repeatedly injured by the natural floods. A very high flood is not as dangerous as a flood that just tops it. We have repeatedly had floods that were considerably higher than the one which made the break.

Those floods do not give one-fourth of the trouble that a flood that has got just about to the top of your work, does. It was one of the heavy floods of that season of the year. An unusu-

ally heavy flood for December as far as I could gain from
191 talking to the river men and inhabitants down there. In-

cluding December my recollection is that the total estimate for the work on this contract was about $36,000, which, after deducting 15 per cent., would give us the amount of money that was estimated to me on January 1st. That would be $30,000. That includes part of the regular contract work in the month of December. I did not get my pay for December work until along about the 5th or 10th of January, and I had not received that pay at that time. I had the estimate made out before I got the money. I think about $22,000 had been paid me on the 31st of December. I have so many of those estimates I can't remember.

Under the advice of the counsel heretofore referred to, I still refuse to produce the contract plans and specifications for the construction of this dam. It is not on account of any reason or interest of my own that I refuse to produce the plans, specifications and contract, but simply because of the advice of counsel for defendant that I have referred to.

Cross-Examination.

192 To the best of my recollection, Mr. Munroe first con-

ferred with me, with reference to this proposed work, about four or five weeks before the work was let. I had some talk with Mr. Munroe about his purpose of building a dam and a power house on the river, I should think, about five years ago. At that time he talked with me with a view of my possibly bidding upon the contract for that work. I commenced getting my material ready for this work at Dresden Heights the latter part of July, and the first part of August, 1907. I assembled some material there before the contract between me and the Economy Light & Power Company, was signed. I had been advised that my bid was accepted before the formal contract was signed. I then began getting my material ready at the ground. In the statement I have made or the testimony I have given, as to the amount which had been paid me, or estimates given me for the work, nothing was included for the cost of my plant, assembling my material there, and erecting my houses and preparing for the

work. The cost that I was put to in that particular on this contract, was about $110,000 or $115,000. I have a number of houses there now, and a considerable amount of ma-
193 chinery. I had certain sub-contractors on this contract. Work has been done by the sub-contractors in addition to my work at the time this injunction notice was served.

Q. What was the work that had been done under your contract or sub-contract, in addition to what you have already mentioned?

Counsel for complainant objected to the question as irrelevant, incompetent and immaterial, and not proper cross-examination.

It was thereupon agreed by stipulation that the objection might stand to each question asked.

A. The contractor for the levee for the Riley Creek diversion had assembled and erected his machinery to do this work. He had it already to begin within a few days of the time of the injunction. The contractor for the levee at what is called the Smith's bridge levee, above Channahon, had also assembled his graders, teams, outfit, etc., and had done some work on that.

That Smith's bridge work is about 4 or 5 miles above the point where the dam is being erected, I should think. The Smith's bridge levee is a permanent levee. On that levee, at the time the injunction was served, I should say about 12,000 to 15,000 yards' work had been done. The levees that I repaired after the flood were in the bed of the river, that a 4 or 5 foot rise would submerge; not under water when the river was at its low water mark. No work had been done on the levee intended for the Riley Creek diversion, prior
194 to the injunction, except assembling, and erection of the plant to do that. A concrete core wall for a levee was made before the injunction, but no concrete for the power house or dam or plant, as the question was put to me before. This core wall concrete was a short piece of wall, about 6 feet high, 3 feet base and about 80 feet long.

Q. Was that located upon the tract reserved for a government lock?

Counsel for complainant objected to the question, as assuming a state of facts to exist and to be in evidence, whereas, there is no evidence that any such state of facts does exist, and because the same is irrelevant, incompetent and immaterial, and not cross-examination, in any point of view.

A. This core wall of concrete was placed in the levee and dam, which was to connect the canal levee with the proposed power house, so as to make the dam watertight. This dam was placed in this position between the levee and the canal and the power house, composed of dirt, as I understood it, so that the same could be readily removed at any time.

It was so placed for the purpose of the installation. For the purpose of the erection of a lock at this point. That would be, referring to Hillebrandt Exhibit 3, at the right hand side of the river going down, and at the end of the proposed dam. The purpose of the core wall that I refer to, was to prevent water following the course of the bed rock underneath the surface and undermining this dam. The portion

that I refer to as having been built of earth could be
195 very readily and very quickly removed by steam shovels.

That work was made of that character under the direction of the Economy Light & Power Company. At the time the injunction was served, the earthen dam part was completed; the up-stream side had been riprapped to the rock. It was practically ready for the service for which it was intended. The connections provided for the towpath bank had been completed at the time of the injunction. With the exception that the towpath was to be raised some 2 feet, that was the only connection to be made with the towpath on the plans. About 1,000 feet of the work of raising the towpath, had been completed at the time of the injunction. It had been raised 2 feet, under the supervision of Mr. Mead, represented by Mr. Woermann, the Dresden engineer. The Canal Commissioners were represented in this towpath matter.

The canal superintendent was down there and consulted with us and we with him, and finally we put it in according to his directions.

Counsel for complainant objected to the last answer specifically as being a conclusion and opinion of the wit-
196 ness, and embracing transactions and conversation and directions between the witness and this other party, and that it is not the best evidence, and also as irrelevant, incompetent and immaterial.

The plans for this work are not physically attached to the contract between myself and the Economy Light & Power Company. The earthen dam or embankment that abuts upon the towpath is now about 90 feet wide, or the proposed width, I think, is 96 feet; it is now about 75 or 80 feet wide, ready for its junction to the masonry as soon as that is completed.

That was so at the date of serving the injunction. The specifications are physically attached to the contract, but the plans are not.

Re-direct Examination.

In the center of the river at the point where the dam would come, before I did anything at low water, it was about 4 or 5 feet deep. It is now about the same. I don't know what the depth is today. At the time we got our coffer and levee in, we had about 16 feet of water. It was considerably
197 deeper at these various floods I have referred to. The country down there is to a considerable extent rather flat on one side. It is high on the right hand side, and it is low on the left hand side. I haven't myself seen the bottom of the river. We took the soundings that were made by the representatives of the Economy Light & Power Company people, and we made a few ourselves, but could not determine by those the character of the bottom, except that it was about, on an average, 4 or 5 feet deep. There were some boulders in it and some rocks. At low water that was all covered throughout the width of the stream.

The canal superintendent that I referred to was a Mr. Keough; he is now dead. Mr. McDonald, I think, was the last man along there. Mr. Keough, as well as Mr. McDonald was there; they talked with my superintendent. Whatever direction or conversation of that kind occurred, occurred between Keough, or Keough and McDonald and my superintendent. It did not occur directly with me. My orders to my superintendent were to see them and have them approve the fill that we were putting on the canal levee towpath.

(Counsel for complainant thereupon moved to strike out all reference to the witness' orders, through his superintendent, and to the conversations by the superintendent, as being transactions of which the witness does not have personal knowledge, and as not being the best evidence.)

198 I say the work, on the connection of that dam with the towpath, and the raising and filling of the towpath for a thousand feet back up-stream before the connection, is completed.

Re-cross Examination.

The character of the rock that I excavated from the cofferdam, was a sandstone, also a soapstone, also a soap sandstone, also a bastard sandstone, some iron in it.

Re-re-direct Examination.

That is not what is ordinarily geologically called sandstone shale. There was shale stratas of it. There were also stratas of sandstone and stratas of soapstone. I have
199 told you all I know about that sandstone. It was probably formed there in the same manner as it is formed in the other deposits found in the country with the exception that the top of this sandstone was subject to severe glacial drifts, and I think the action of the receding waters and sun caused the shale, caused it to disintegrate to a certain extent. If the same influences would be continuous, it was a continuous process; and there was some evidence of clay, which undoubtedly formed the soapstone. As to whether it was the customary, normal sandstone and shale which overlies the coal measures, and belongs to the coal measure period, it was not quite as deep as you find that. You take it in Alabama in the Birmingham district, and you will find the shale limestone, that is down lower in the river in what they call the foot hill district, which runs 3 or 4 and 5 feet deep. This shale seemed to be very shallow, and was superficial in that respect. This sandstone shale is not the same as I have
200 found in Louisiana and Alabama or Indiana; it was much shallower in depth. It seemed to have been caused more by the water than by any upheavals, as the other sandstone fields, to which I have referred, seemed to have been caused by the upheavals or action of the heat and the ground.

I mean to convey the idea that in the recession of the waters from the higher points to the valleys and the lower points, the loose material will follow the drainage; naturally our shed is toward the Mississippi river here, and the evidence is, and the valleys of that district show that a glacial drift had drained off through that way and had lodged and been left there by the receding water.

201 ROBERT E. ORR, a witness called on behalf of complainant, testified as follows:

Direct Examination.

Q. I believe Orr Exhibit 3 has already been put in evidence. I direct your attention, Mr. Orr, upon this Orr Exhibit 3, to the enclosed area marked "Riv. Desplaines," which has already been testified as representing the Desplaines river, and to the two sets of lines by which that river is delineated and its course enclosed; one is the firm, continuous white line on one side and the other is a set of dotted lines adjacent to it, and which is outside of the firm line most
202 of the way, however, in one or two instances, it seems to be reversed. What is this dotted line, or what are these dotted lines?

A. It represents the meandering line of the Desplaines river.

Explaining the condition between the index plat and the section plat, Orr Exhibits 1 and 2 are indexes of books, plat books 1 and 2 in the Canal Commissioner's office at Lockport. The index plat is on a small scale, showing the whole area of what is in the book. The book is made up of section plats showing, on a large scale, each section in the canal. The three books known as plat books 1, 2 and 3, which I have referred to, contain section plats of the canal for its entire length, from Bridgeport on the northeast, down past Joliet and Dresden and clear to Ottawa, or the west end of the canal. Each of these books has an index plat on the front, and then section maps for the detail work following it. These section maps throughout the course of the Desplaines river delineate these dotted lines upon each side of the river. Those plats were prepared by A. J. Mathewson, Assistant Engineer of the Canal Trustees. He was employed by the Canal Trustees in 1847 and 1848.

The blueprint now shown me, which is marked "Orr Exhibit 6," for identification, is a representation—it is a tracing of plat book No. 1, representing Sections 3, 4, and 5, Township 38, North Range 13, East of the 3rd P. M., showing a part of Mud Lake. This is a part of the plat that was surveyed, and to which I have heretofore referred, made at the time, and by the person to whom I have already referred. I

know from practical examination it is a true copy in every respect.

Counsel for complainant thereupon offered in evidence a certified copy of the plat of map of Beard, part of Handy's part of the Town of Kankakee, laid out between the mouth of the Kankakee and AuPlaine river, in Section 36, Township 34, North Range 8, East, certified by Fred S. Johnson. Said plat was thereupon marked as complainant's Exhibit A-1. (Atlas, p. 3929.)

Objected to as incompetent, irrelevant and immaterial and no proper foundation laid.

Counsel for complainant also offered in evidence a cer-
203 tified copy of a plat of Buffalo, a town laid out in the northwest quarter of Section 2 in Township 34, North of Range 9, East, in Will County, properly certified by the proper officer of the county. Said plat was thereupon marked as complainant's Exhibit A-2. (Atlas, p. 3930.)

Same objection.

Counsel for complainant also offered in evidence a certified copy of a plat or map of the School Section Addition to the Town of Joliet, Cook County, Illinois. Said plat was thereupon marked complainant's Exhibit A-3. (Atlas, p. 3931.)

Same objection.

Counsel for complainant also offered in evidence a certified copy of a plat of Juliet Subdivision of the southeast fractional quarter of Section 9, Township 35, North Range 10, East of the 3rd P. M., platted May 13th, 1834. Said plat was thereupon marked complainant's Exhibit A-4. (Atlas, p. 3932.)

Same objection.

Counsel for complainant also offered in evidence a certified copy of the plat of Subdivision known as West Joliet, a survey and Subdivision of the west $\frac{1}{2}$ of the southeast $\frac{1}{4}$ of Section 9, Township 35, North Range 10, East of the 3rd P. M. Said plat was thereupon marked complainant's Exhibit A-5. (Atlas, p. 3933.)

Same objection.

Counsel for complainant also offered in evidence a certified copy of a map or plat of the Town of Vienna. Said plat was thereupon marked complainant's Exhibit A-6. (Atlas, p. 3934.)

Same objection.

204 Counsel for complainant also offered in evidence a certified copy of the plat of Lockport. Said plat was thereupon marked complainant's Exhibit A-7. (Atlas, p. 3935.)

Same objection.

Counsel for complainant also offered in evidence a certified copy of plat of West Lockport, together with a certificate of vacation in 1855 attached. Said plat was thereupon marked complainant's Exhibit A-8. (Atlas, p. 3936.)

Same objection.

Cross-Examination.

I have a personal knowledge that Mr. Mathewson made the maps I refer to. Mr. Mathewson told me he made those maps and that he preserved a copy, and they are in his own handwriting; the printing is in his own handwriting; all this work was his tracing. On these copies presented here, his handwriting is represented; that is his printing; his handprinting. I know his handprinting. I have known Mr. Mathewson since 1900. He is not living now. These maps were made in 1847 and 1848. I was not there when they were made. I am now 52. I was not living at the time these maps were alleged to have been made. In addition to what I have said, I base my statement that these were made by Mr. Mathewson from certificates; that is to say, the certificates tell that they were made by a certain person. The certificates to which I refer are in the records of Will County. I could not say whether there are any certificates there signed by Mr. Mathewson which show that these maps were made by him. I
205 speak of the public records, and he was the surveyor, county surveyor, there for some time. There are no certificates there that show that these particular maps were made by Mr. Mathewson. The maps as recorded bear a date. This date here that I produce is June 5th, 1847. I understand that to be the date at which the map was made. There is a date other than that on the maps as they are recorded. The original maps of Mr. Mathewson were not recorded at all. These are copies of the original maps; duplicate copies. The
206 canal people kept the original copies and they are in the canal office now. I cannot say whether or not the maps which are in the Canal Commissioner's office are copies of the original. These maps that I produce are copies of that one in the canal office.

Q. You don't know whether that is the original or not?

Question objected to as immaterial; he stated that they were the canal records, and that is sufficient for the purpose. Whether Mr. Mathewson made two or three sets and kept one of them and returned another to the Canal Commissioners or Trustees by whom he was employed to make a survey of the plat, is immaterial.

A. That is the original plat, so far as the canal records go, that I can find.

So far as the records go, that is the original map, with the Trustees; that is all the original that I know of.

Q. Do you know that it is an original at all?

Question objected to as an attempt to assume a state of facts.

A. I do not know particularly that it is, but it is an original. I mean it is the first copy of the records of survey made by Mr. Mathewson from Ottawa to Chicago, on the canal. That is, it is a copy of what appears in the Canal Commissioner's office, as to that survey—is the first copy; that is, the original map made by Mr. Mathewson from that sur-
207 vey. It is in his drafting, his delineation; that which is there in the office, was made by his hand; that is his work; that is the way I identify the work. I could not swear that that which is in the office was made by his hand. I did not see Mr. Mathewson draw the lines on the cloth. I take it that it was under his direction, and that he altered and made these notes as he saw fit, and corrected them from time to time. The records and correcting, dating from 1837 to 1892, are his handwork. I knew Mr. Mathewson as a neighbor. He lived in Lockport, and I lived in Joliet. I had some business over there. I do not know of my own knowledge whether or not those meander lines correctly represent any meander lines shown by the survey of that property. I do not know when the meander lines were placed upon the map. They were made, though, at the time of the map. I know that from the work.

There are no characteristics in that dotted line that show me it was made by Mr. Mathewson. I have no knowledge of my own as to when that meander line was traced; whether it is the correct meander line of the stream or not, I have no personal knowledge. These Exhibits,—the same being plats, which I have identified and which are marked Exhibits Orr

from one to six, inclusive, are true and correct copies of
208 plats in the office of the Canal Commissioners, purporting to be made by Mathewson. There is just one set of those plats in the office of the Canal Commissioners, purporting to be made by Mathewson. These Exhibits are copied from the only plat of the survey, as made by Mathewson, which is on file in the office of the Canal Commissioners.

Q. I direct your attention to the following question and answer appearing in your cross-examination: "As a matter of fact, were the original maps of Mr. Mathewson recorded at all. A. No, sir." In that answer did you mean to state that that had not been recorded in the recorder's office as land titles are recorded?

A. Yes, sir.

Q. Did you have any other meaning than that?

210 A. No, sir. I have seen the book in which these plats appear in the office of the Illinois and Michigan Canal. There are three books, and I have exhibited the detailed pages 1 and 2 here, Exhibits 1 and 2, and they constitute all these sections, a delineation of all the sections cut and traversed by this canal and this survey by Mathewson. They do not purport to be a survey of the canal land; they do not purport to be a survey of the canal 90-foot strip. The title of that book reads, "that book numbers 1, 2 and 3 Canal Survey," that is the title. That is all there is; that is all that appears on the book aside from plats themselves and the index. I made these blueprints by the blueprint process. I took that from Mr. Mathewson's own work. This is a copy of Mr. Mathewson's own work. I did not get this from Mr. Mathewson myself. These are the Sanitary District maps purchased of Mr. Mathewson. Mr. Mathewson made them. These blueprints were made by Mr. Pierson this week. I got Mr. Mathewson's tracings; it was the original, these are duplicates.

Q. Mr. Mathewson, then, kept the original himself, did he not?

Question objected on to the ground of ambiguity as being directed to the blueprint and asking whether the thing from which the blueprint was printed was the original which, in the connection in which it was used, specified that it was the original as to the blueprint, and later giving it the significance in the following question of its being the original of the work done for the Canal Commissioners.

211 Q. Isn't it true that Mr. Mathewson kept his original tracing and that that is what the Sanitary District acquired?

Question objected to on grounds already indicated.

A. No, sir.

We left it in the Canal Commissioner's office. The original is in the Canal Commissioner's office.

212 Q. You are sure of that as anything you testified to?

Objected to as improper.

A. The original plat is in the Canal Commissioners' office. The original plat made by Mr. Mathewson is in the Canal Commissioners' office. This I have here is a duplicate from that in their office.

This is Mr. Mathewson's work; his private excerpt from that record; I mean by that, private tracing. I do not mean that these particular documents that I have produced
213 were themselves made by Mr. Mathewson. This print was made by Frank Pierson in the Tacoma Building, from a tracing that the Sanitary District purchased from Mr. Mathewson. Then I went down to Lockport and compared it with the original in the Canal Commissioners' office. This is a duplicate of the plat records that are in the Canal Commissioners' office. I don't say that the one that is on file down there and the one that was copied here in the Tacoma Building were made at the same time by the same person, but it is an exact copy. The reproduction here is an exact copy of our record.

I personally took with me the blue print and tracing from which the blue print was made to Lockport. And I com-
214 pared that blue print and tracing and each of them, with the original in the Canal Commissioners' office at Lockport. These blue prints which have been introduced in evidence, and which were prepared in the way that I have described, are exact copies of the original records in the Canal Commissioners' office at Lockport. When I say "original records," I mean books 1, 2 and 3 which I have described down there and nothing else.

215 ARTHUR C. CLEMENT, a witness for complainant, testified as follows:

Direct Examination.

I am 56 years old, was born here in Will County. Have always lived here except an absence in boyhood prior to the time I was ten years old. I have lived right on the banks of the Desplaines and gone up and down the river in boats from an early period of my life, practically every year, say from
1864 to 1900. I have not boated on that river since the
216 drainage canal water was turned in. I had a boat-house at the lock at Jefferson street bridge, kept in it a clinker-built keel boat, 14 feet long, capable of carrying about a thousand pounds. I loaded it to the full capacity on the river lots of times. Before that I had a flat-bottomed boat 14 feet long but smaller than the clinker. After that I got a 16-foot boat, also a canoe, also a half interest in a semi flat-bottomed boat, also I had a sail boat there. The semi flat-bottomed boat drew a foot of water loaded. It would carry
217 seven to eight hundred pounds. The sail boat was 22 feet long and drew two feet of water and would carry probably three tons. I did not use that on the river. We went with that by way of the I. and M. Canal on the Chicago river and Lake Michigan up to Chicago and to Lake Superior. We did use it on one or two experimental trips in the upper basin through the upper locks and up to the tow-path bridge on the Desplaines once or twice. When I was using the river ordinarily from the middle of May until October I was down on the river nearly half the time.

218 I started in life as an attorney and followed it up by the loan and real estate business. Since 1895 I have kind of retired.

As to the depth of water in the river, there was plenty except that up the rapids this side of Brandon's bridge and a little below and the rapids at Treat's Island. There was no trouble in running a boat down there that would draw even three feet of water, if you knew the channel. Between Lockport and a point two miles above Joliet the river is not
219 navigable for small boats. From Malcolm's dam down to the mouth there was plenty of water until you got down about a half mile this side of Brandon's bridge. There was

a shallow place there amongst the bowlders. I had no trouble in running a row boat there, if I knew where to go, drawing fifteen inches of water. Then you had clear sailing if you knew the channel, right straight through to Treat's Island. There you took the left hand channel going down, that is the east channel. That was the deepest channel. About one-third of the way down the island there used to be an old dam, I think, or something. There was the shallowest place. I have grounded there a great many times; sometimes I had to get out and pull it over. Generally I could pole it over.

The length of that shallow place was not, I don't think, over 100 feet. After that the water was deep until about the mouth of the Du Page river. There you had to know the channel, or a boat drawing fifteen inches might strike bottom. Then you had clean sailing until just below the aqueduct there was an old dam used to be there and you passed through a rather narrow channel there. Below that it was all bowlders for half a mile to the mouth. If you dodged the bowlders you were all right. If you did not you would come to grief. These were loose bowlders. There would be about three or four inches over the top of them, maybe two feet of water
220 between them. The bowlders were about three feet in diameter, a great many of them. There was plenty of water between the bowlders if you could dodge them. About 1885 I made a trip from here to a mile below the junction of the Kankakee and Desplaines rivers and returned on the canal the same day, making a trip of about 32 miles from eight o'clock in the morning until ten at night. That was probably either in June or September; there was no trouble on the water that trip. I made two carries, one from the canal into the river, one from the Illinois river into the canal.

We did not have to pole at all that trip. The boat loaded
221 as it was drew between twelve and fifteen inches. We put in opposite the oatmeal mill, about three-quarters of a mile below Jefferson street.

At that time a boat drawing two feet of water would find the river navigable in the condition it then was.

If the loose bowlders were removed and the hundred feet of shallows were excavated at Treat's Island, and the
222 bowlders at the mouth and at Brandon's bridge were removed, I could run a boat carrying three feet of water on that. I presume in the neighborhood of three-quarters of

a mile, taking all these three together, would have to be cleared out before you could get through drawing three feet of water.

The part of the river up near Lockport I could not run a rowboat on at all, and did not go there.

Lake Joliet before the deep cut was put through was quite deep, in some places more than sixteen feet. Lake Joliet
223 is about five to five and a half miles long. Mount Joliet would be almost at the head of the lake, about a half mile down from the head. Mount Joliet has been pretty near
224 all carted away by being used for gravelling and clay for tile drains. The mount is now pretty near level. They were carting it away in 1863. The place above Joliet where we could not get through was very rapid—a very rocky
225 channel and there was not water enough there to float a boat over. That extended about two miles. The back water from dam number one went up to Wood's Island. I never went above that.

Witness is shown Cooley profile which is marked for identification Exhibit 1 of Complainant's Depositions. Witness was unable to make use of the profile.

Cross-Examination.

North of Joliet I have seen the river from the train as far up as Lockport.

226 For a mile and a half to two miles north of Wood's Island you could not run a small boat either way. My boat house was in the vicinity of the guard lock at Jefferson street.

The I. and M. canal and the Desplaines were coincident at that point. When I went down the river I generally went through the locks into the canal and pulled the boat over at the Malcolm dam or below there at the oatmeal mills. Then I ran down the rapids past Brandon's bridge and so on to the mouth of the river. There was a stone dam, the Jefferson street dam, across the river just at the boat-house. That dam formed what was known as the lower basin of the I. and M. canal. I went in the canal as far down as Malcolm dam.

That dam used to extend north of McDonough street. It
227 is gone now. A man who was an experienced oarsman could descend the river from Malcolm dam to the head of

Lake Joliet with safety, but would have lots of trouble; the trouble would come from shallow water and bowlders. I would not say he would be in danger of being overturned; I never knew of anyone being tipped over there in ordinary water. It is not a fact that very few people went down the river. I can remember a good many.

From the head of Lake Joliet to Treat's Island there are rapids. Treat's Island is a little less than half a mile long

After passing the foot of Treat's Island down to what is
228 now Smith's bridge it was dead water half the way, and then the current began, and passing under Smith's bridge there was plenty of good current. Passing the mouth of the DuPage there is a good, heavy, swift current. After that the current slowed down until I got about to the cut-off, and there it is practically dead water until you pass the aqueduct. From the aqueduct to its mouth it is good water until you get to where the old dam was and there there was a narrow channel through. I should say there was at least three feet of water there. Below that you entered into about a half mile of bowlders, about three feet of water in depth between the bowlders.

Q. At the mouth of the Desplaines isn't the current very rapid, boiling?

A. I should not say so; there is a good heavy current above the mouth.

Q. And the water is in waves from the rapid declivity?

229 A. Unless it was high water it was not, but since the drainage canal turned their water in, why, it is.

Q. Was it worse in low water?

A. If it was as you describe it, I would have smashed a boat there, and I have been through there a thousand times, I guess, and I never smashed a boat there yet.

If a man did not understand a boat I don't think he had any business there.

Q. The man who attempted it was considered somewhat of a dare-devil?

A. No, I don't think so. I never heard of people being capsized there. I never was. I ran right through there at the mouth of the Desplaines without any trouble, did not hit a rock on the passage. Went a clean shoot from here down there. I came up on the canal in '85 because it is easier to pull a boat in dead water sixteen miles than to pole it up

against the current. I could have brought it back by
230 the river. I could have paddled it and poled it and rowed it.

Q. Do you think you would have had to get out and pull it?

A. Well, I have done that at Treat's Island. I have brought it back without getting out hundreds of times. I have paddled a boat up that stretch of the river from that aqueduct to the mouth of the Desplaines right up the current. The current was not too swift. I paddled about as well as an Indian. There is no trouble of going up that stretch of river. I have been down there with boat-loads of passengers who were green and could not help me any at all, hardly, and I got up the river from the junction to Joliet as far as Brandon's bridge. I have done it time and time again. Sometimes I did get out of the boat. It was easier to get out and pull a little than it was to work in the rapids. It is not a fact that just below the junction of the rivers there was not sufficient water to float a boat or that it was necessary to one going up or down that stretch to get out and pull the boat along. I never had any trouble of that kind.

There is a place down below the junction about a mile
231 and a half where there are some sand bars. That is in the Illinois river. I have got into difficulties there. It is not a fact that at Treat's Island at most seasons of the year you have to get out and pull the boat by hand. I will pull a boat up there with oats or a paddle any time. My boat drew about fifteen inches when it was heavily loaded. My boats were good grades of row-boats, $50 row-boats. I remember the depths of water as far back as 1865. There was more water after the deep cut went in in 1872, I think. I have paddled a row-boat from the mouth of the Desplaines river up the river to Malcolm's dam between the years 1865 and 1871. I would not say that I did it without ever getting out of the boat. It was done for pleasure.

232 Q. Have you stated to any one within the last thirty days that it was perfectly absurd to contend that the Desplaines river was a navigable river?

A. I don't think I said that. I made the remark that I understood that the Desplaines river was not a navigable river, and that the Supreme Court of this state had determined it was not navigable.

Q. And did you not in that connection state that you knew

of your own knowledge it was not navigable, because you had been obliged to get out and pull a row boat, even in places in the Desplaines river?

A. I don't remember saying that. I would say it now, because I have got out.

Q. As a lawyer and a man who is familiar with the Desplaines river, and knowing that the river is not a navigable river that is capable of carrying commerce in the ordinary way in which commerce is carried on; I ask you whether or not in your opinion the Desplaines river is a navigable river?

COUNSEL FOR COMPLAINANT. The question is objected to, as not cross-examination, and as embracing elements of supposed legal determination by the Supreme Court, which
233 should be separated from the question; so that the element can be judged of separately. The witness probably refers to the case which has been cited by counsel for defendant in the argument for an injunction in this case, in which it is stated in the opinion of the court that it was stipulated by the parties that the river was not navigable, and which is the only reference to that subject which occurs in the decisions of the Supreme Court; where the owner of the dam on one side, and the Commissioners of the canal on the other, which desired to obtain and make use of the water of the river; one for the purposes of his mill, and the other for the purposes of their canal; and where the parties having mutual interest that the river should be considered as non-navigable, which is the only decisions by our court upon the navigability of the Desplaines river.

Mr. MUNROE. I object to the argument and dissertation of Mr. Starr, and move that it be stricken out as entirely improper.

The WITNESS. I have always understood that the Desplaines river was non-navigable.

Q. From your knowledge of the Desplaines river, I ask you, in your opinion, whether or not the Desplaines river ever was or now is capable, without improvement, of carrying commerce in the ordinary way in which commerce is carried on in this country?

COUNSEL FOR COMPLAINANT. The same objection made to all the questions before may be considered to each and all of them repeated here.

A. Why, in its present condition you couldn't carry on commerce. Of course, I understand you can put a flat bot-

tomed boat on a river and put a wheel on the back end and navigate it in three feet of water.

Q. That the currents in this river are such that you simply could not go up it or go down?

A. I don't think the currents are that way. Certain points in the river are too shallow for it, even now.

I have never seen any fences across the Desplaines river at any point, and I have been down the Desplaines river
234 every year from 1865 to 1899. I heard the first time I went down in 1865 that there were fences across the river down near the mouth of the DuPage and that it was dangerous to run there and strike those fences, but I went down and I didn't find them and I never did. I don't know that there were any fences maintained during that period by Mr. Adler at Smith street, nor between South street and Brandon's road. I have gone down the Desplaines river in times of high water. There was no difficulty then. It was easy then. I did not come up. There was too much current. I could row my boat up. I would be willing to bet I could. I did not want to.

Re-direct Examination.

Q. Your statement on cross-examination of your opinion as to the non-navigability of the river is meant to apply to the river without improvements in the respect you mention in your direct examination by the removal of boulders and excavations?

A. No, sir; I always understood that the river was non-navigable. I don't know exactly what navigability means, to tell the truth. I have always understood from other attorneys, that the decisions of the Supreme Court were al-
235 ways that it was non-navigable, and I always regarded it as that. But not having any clear idea in my own mind what navigability means, I haven't got any.

Q. And having given your impression from the statements from other attorneys, you were repeating opinions so obtained, in answer to Mr. Munroe's question?

A. Yes, sir; I never have looked it up.

Q. You don't mean to be now understood as expressing an opinion of your own on that subject?

A. I have no opinion.

Jefferson street dam is gone out, the drainage people took

it out about 1898. The old dam near Treat Island was across one branch. There is none showing there at all except that the water was shallow at that point. The other shallow point was incident to an old dam about three-
236 quarters of a mile below the aqueduct. There is nothing there to show what kind of a dam it was, nothing more than there were rocks there, did not show above the water.

Re-Cross Examination.

There is a very heavy current at McDonough street since the dam was taken out.

Q. Assuming that dam number one was not in the river—

A. That is the dam up above here?

Q. Yes, sir, that is the dam that the Economy Light & Power Company now has; and solely upon your knowledge as to the conditions in the river, I will ask you to state whether or not in your opinion the Desplaines river is capable, in its present state, of carrying the commerce of this country up and down the river?

Objected to as not re-cross and because the witness has declared he has no opinion and because of indefiniteness and as irrelevant, incompetent and immaterial.

A. The rapids at the Sault Ste. Marie are 16 feet fall there in a mile; and the rapids are so stiff there that nothing can go up except in places by professional Indians with poles. It is a rapid, the worst in the country. And the fall through here to the head of Lake Joliet is nearly double that amount.

237 Q. I understand, you then answer my question by saying no?

A. If that dam was taken out, it would be a raging rapid, with double the fall of the Soo rapids.

Q. And could not be used for commercial purposes?

COUNSEL FOR COMPLAINANT. I object.

A. If there was water enough, you could go down a-kiting, but you couldn't get up.

COUNSEL FOR COMPLAINANT. We will enter a motion to strike out the re-cross examination.

238 WILLIAM W. STEVENS, a witness for complainant, testified as follows:

Direct Examination.

My name is William Wallace Stevens; my age 78. I have lived in Will County since November, 1855, was born in Rumford, Maine, came to Illinois in November, 1855. My first place in Illinois was at the Old National Hotel. My first work was teaching school in Dresden, Grundy County. I
239 went down there the same month I came. I finished that school in March, '56, and came back here until September. I read law with Parks & Elwood here in Joliet and became a lawyer. I have been an editor of the Joliet Record from 1880 to 1900. I have made a study of the history of Will County and published a book on the history of Will County. There was a history of Will County published prior to mine. It was prepared by George H. Woodruff. He was one of the old residents of the city here. He came, I think, in the spring of 1834. I knew him well from the time I first came here until his death in 1890. As matter of current reputation and history of Joliet and Will County I was acquainted with the standing and acceptation of the history that he published. It was of good standing. He has a name as a
240 historian since publishing that book. This book, marked for identification Complainant's Exhibit 2, is Woodruff's History of Will County that I have referred to, and was published by William LeBaron, Junior, & Company, 186 Dearborn street, Chicago, 1878. I did not know Perrin or Hill. Mr. Woodruff was the first recorder of Will County.

Passage from page 607 introduced in evidence as Complainant's Exhibit 2 as follows:

241 "The Kankakee being navigable for small steamers to the eastern point, an outlet is thus furnished for the upper portion. Though navigation has been improved by the building of dams at Wilmington, it has in reality been used for that purpose during wet seasons since the earliest settlements of the adjacent country. As early as 1834 the products of the farm were boated down the Kankakee to the Desplaines and up the latter river to Chicago. It is related that during the year named some parties loaded a boat on Sugar Creek, a tributary to the Iroquois with

300 bushels of oats, 300 bushels of wheat, and some hams, with the design of taking them to Chicago to supply the garrison stations there. The trip down the Kankakee was accomplished without accident or unusual trouble, but after entering the Desplaines, when near Treat's Island the boat dipped water and so dampened the grain that they were obliged to unload and try to dispose of their produce at that point. At the time settlers were arriving in that neighborhood quite rapidly and they had no trouble in disposing of their whole cargo, the oats at 50 and the wheat at 75 cents per bushel. At present small steamers owned by Messrs. Small of Wilmington and Stephen F. Hanford, of Warner's Landing ply regularly between these points and Chicago, carrying to that city corn, oats, rye and other products, and bringing back lumber, salt and other heavy articles. The 'landing' which is located near the eastern point of the township is considered the head of navigation during the dry season, but when the river is ordinarily full boats can run much higher."

The title page and preface of the book are as follows:

241a "The
History
of
Will County,
Illinois,
containing
A History of the County—Its Cities, Towns, &c., a Directory of Its Real Estate Owners; Portraits of Early Settlers and Prominent Men; General and Local Statistics; Map of Will County; History of of Illinois, Illustrated; History of the Northwest, Illustrated; Constitution of the United States, Miscellaneous Matters,
&c., &c., &c.

ILLUSTRATED.

Chicago:
Wm. Le Baron, Jr., & Co., 186 Dearborn Street,
1878.

241b Preface.

In presenting our History of Will County, we deem a few prefatory words necessary. We have spared neither pains nor expense to fulfill our engagement with our patrons and make the work as complete as possible. We have acted upon the principle that justice to those who have subscribed, be they few or many, requires that the work should be as well done as if it was patronized by every citizen in the country. We do not claim that our work is entirely free from errors; such a result could not be attained by the utmost care and foresight of ordinary mortals. The General History of the County was compiled by Hon. Geo. H. Woodruff, of Joliet, and the Township histories by our historians, W. H. Perrin and H. H. Hill. Some of the Township Histories are indeed longer than others, and have been the scenes of more important and interesting events. While fully recognizing this important difference, our historians have sought to write up each township with equal fidelity to the facts and information within their reach. We take this occasion to present our thanks to all our numerous subscribers for their patronage and encouragement in the publication of the work. In this confident belief, we submit it to be the enlightened judgment of those for whose benefit it has been prepared, believing that it will be received as a most valuable and complete work.

THE PUBLISHERS."

241c This book you now show me is a bound volume of the Joliet Signal for the years 1846, 1847 and 1848. It is kept in the public library and is a part of the public library of Joliet. The library label of the book is, "Joliet Public Library. Reference Book. Not to be taken from the library. Class No. R071JS. Accession No. 1057."

I was acquainted with the Joliet Signal as a newspaper from the time I resided in Will County. It ceased to be published in 1900. It was published regularly as a weekly newspaper at the time I came to Will County and continued to be all the time up to 1900. It was a newspaper in general circulation in Joliet and Will County at that time. My information from the current reputation and history of Joliet and Will

241d County is that that paper was in general circulation in Joliet and Will County in the years 1846, 1847 and 1848. Complainant's Exhibit 3 offered in evidence appearing in

the paper under the heading "Joliet Signal, Joliet, Illinois, Tuesday, June 8th, 1848" (reading):

"Appalling Accident. Ten Men Drowned. It becomes our duty to record a most painful accident which happened yesterday morning, about fourteen miles south of this place on the Desplaines. A boat containing sixteen men was sunk, and only six of the number were saved.

It appears that they were at work on the canal, and boarded on the opposite side of the river, and when returning from their breakfast, the boat was sunk by a yoke of oxen which was on board becoming ungovernable and moving so near one end as to cause it to fill with water. It was just above Beard's mill, and in about twenty feet of water. We learn that the bodies have been recovered.

It is reported that C. Delmore, John Dougherty, P. O'Neill, ... Turner, Jas. Dunn and Chas. Kelly of this place are among the drowned. The names of the others we have not learned. Five of those who made their escape were from this place, viz.: David Major, J. Kelly, J. Mulholland, C. Stevens and James Davilin."

242 I have made a study of the early history of northern Illinois and Will County. I wrote the book which was published by S. J. Clark & Company, Chicago, in 1907, entitled "Past and Present of Will County, Illinois." I knew the late George H. Woodruff well; I heard him lecture on that subject.

I have been connected with the Will County Old Settlers' Society, the Will County Pioneers' Association a good many years, and I have been president. It was organized in 1880 and has continued in existence to the present time. I united with it about fifteen years ago and have been an officer

243 all of the time since. It had about 150 members when I joined. I was personally acquainted with the greater portion of them at that time.

Mr. Woodruff, whose lectures I have heard, was a member of the organization. The lectures were printed in his lifetime in the Joliet Republican here when James Goodspeed was the editor, and were afterwards published in book form and bound in with another book.

I have a copy of the book here.

The book Stevens Exhibit 4 was printed in 1875. I have had the book all the time since then. It is entitled "Directory of the City of Joliet for 1875, etc."

At the end of the book is a supplemental title page reading as follows:

244 "Forty years ago. A contribution to the early history of Joliet and Will County. Two lectures delivered before the Historical Society of Joliet, by George H. Woodruff, December 17, 1873, and March 24, 1874. Published by James Goodspeed, Joliet. Joliet Republican Steam Printing House, 1874."

On the reverse side of the title page is a copyright memorandum as follows:

"Entered according to the Act of Congress in the year 1874 by James Goodspeed, in the office of Librarian of Congress, Washington."

On page 5 is the title:

"Lecture 1. Delivered at the Central Presbyterian Church in Joliet, December 17th, 1873."

I was present. I heard one of the lectures. I am quite certain it was the first. I don't know but I heard both of them. I presume I was present at both. The house was pretty nearly filled. There must have been five hundred probably present, embracing the Old Settlers and others. Mr. Woodruff's statements were always accepted as true and authoritative on all matters of history in regard to the settlement of Will County, and from that time forward he was known as the historian of Will County. The society to which I have referred was called also the Will

245 County Historical Society. It is the society referred to on the title page and in the preface. The preface is by the late Judge John M. Wilson, of Chicago, who was formerly a resident of Joliet. I knew him as a resident here.

COUNSEL FOR COMPLAINANT. I will offer in evidence the passage on pages 34 and 35 of this supplementary book by Mr. Woodruff as follows:

"But there was also another famous city, just over the line in another county, of which a little Dutchman, Johnny Beard, was the proprietor. Johnny thought this was to be 'one very great city.' He made a splendid looking one on paper, with the great Kankakee coming down from the east and the Desplaines and Du Page united from the north, the 'City of Kankakee' reposing in native beauty at the junction. Johnny used often to come up with his wife in a little old 'coachee' and was always full of his 'city.' He used to squeeze in a little whiskey,

too; but the old horses and coachee used to take him safe home, whether he could drive or not. He dug a dam across the Desplaines, a little above its junction with the Kankakee (which forms the Illinois), and commenced building a mill. But the next spring the Kankakee, which drains a great extent of country far to the east in Indiana, got on a rampage long before the Desplaines, which rises much farther in the north, and coming down with its great volume of water and ice, dammed up the Desplaines—turned its current northward, and sent Johnny Beard's dam, city, mill and all, a kiting up to Treat's Island, where it deposited the fragments. This was the last we heard of 'Kankakee City,' until some of our citizens 'struck ile' there a few years since, and sunk a well,—and sunk a little pile of money too."

COUNSEL FOR COMPLAINANT. I will also offer in evidence the passage on page 14, reading as follows:

246 "John Norman built a mill on this river"—the reference is to the Desplaines river—"at the head of an island which took his name, just above the penitentiary. He built a dam across one branch, which threw the current into the other, in which he placed his wheel, while the shaft at the other end connected with the mill gearing in a log mill." I omit various passages. "I remember visiting this mill in 1834. The island was then quite a romantic spot, being covered with a heavy growth of timber. The digging of the canal has almost obliterated the locality.

COUNSEL FOR COMPLAINANT. And on page 15 I offer a statement introducing a list of names as follows:

"The following are the names of other settlers in those localities now included in the Town of Homer, and that part of Lockport east of the river, and which were known in early days as 'Yankee settlement,' 'Gooding's Grove,' and 'Hadley.'"

(On page 378, *infra*, to avoid encumbering the record by attaching the Joliet Directory to the deposition, complainant's counsel gives notice that he expects to read further from that book on the hearing and will keep it accessible to counsel, and withdraws the attaching of the book as a whole to the deposition.)

247 Q. Where did you live when you first came to Will County, Mr. Stevens?

Temporarily I taught school at Dresden, Grundy County, in the winter of 1855, near the junction of the Kankakee and

Desplaines. I returned here early in March, 1906. I taught school in Channahon in the fall of 1856 and finished out a
248 school in the Aux Sable in Grundy County. I was admitted to the bar of Illinois in March, 1859. I am acquainted with the current reputation and common report as to the early history of the use of the Desplaines by early settlers and explorers, that is, the current reputation and common report in existence when I came here. I inquired a great deal. I was on the river a great deal and talked with a great many of the early settlers in regard to the use that was made of the river before the opening of the canal.

Q. What was the current reputation as to the early use of the river as you so obtained it?

Objected to on the ground that witness has no knowledge of his own of the early use of the river.

A. When I first came here most of the people, the early
249 settlers, were then living, and I became well acquainted with them. I talked with them a great deal about the early settlement of the city and county, not only with Mr. Woodruff, but with a great many others, among them Mr. Daggett and Mr. Fish and the Shermerhorn family at Channahon. They came in 1833 or '4. I boarded with them in Channahon.

Q. State in a general way what the current general reputation was on that subject as you received it from them?

Objected to as hearsay.

A. The current reputation was, up to the time of the opening of the Illinois and Michigan Canal, that the river was used more or less for transportation, certain portions of it. I heard of the lower part of the river being used for carrying lumber. Parties themselves told me they brought lumber up and brought it down to Kankakee and up the Desplaines to the mouth of the Du Page and then up the Du Page to near their place there at Channahon. I was told that by John S. and Edward H. Jesup. I know them well; was often at their house and talked with them. They lived right on the bank of the Du Page, about one hundred rods from its mouth, or practically at its mouth. It was dead water from
250 the mouth up to that point. They came in 1834 as young men with their fathers.

Q. What was the incident that you referred to? What did they tell you about getting lumber, where they got it, how they got it, where they took it to?

Objected to as not being the witness' own knowledge; the objection to stand to all this line of examination.

A. When I was teaching school there it was the fall of the year. I used to go hunting considerable and Edward used to go with me. He took me over to what was called the cut off and then I first heard of their bringing lumber from Kankakee or Wilmington down the Kankakee and up the Desplaines, and he showed me where they used to cross over in high water from the Kankakee over in the Desplaines through the cut-off. That was before the canal or feeder was built. He told me how they got it. There was no mill at that time. Treat's Island mill was not built until several years afterwards, and Wilmington was the only place they could get lumber for use there in Channahon.

He said after they came there with their father, Isaac Jesup, that they built a flat boat and would go up to Wilmington. When the wind was right they could sail right up the Kankakee to Wilmington with no obstructions at all.

251 They would load their boat and come back and if the water was high they would come through the cut-off into the Desplaines and up the Desplaines to the mouth of the DuPage and up to their little lumber yard they had near their house in Channahon. If the water was low they would go down around and come up the mouth. He spoke of having made the trip repeatedly by both routes; that they did that two or three years from the time they came there in the spring of 1834 to about 1836 or '7. 1837 is the time the mill was built at Treat's Island. There was a grist mill at Wilmington at that time and the only mill anywhere around there.

They would carry grain up to the mill on a boat. They carried it not only for themselves but for others from farms in that vicinity.

The lumber was mostly hauled for others, as I understood it. They got lumber as it was needed. They were building there a good deal at that time.

It was a flat bottom boat as they told me. My recollection is that it was 25 to 30 feet long and 8 or 10 feet wide.

252 They would bring down with them from four to five thousand feet of lumber at a time. My recollection is that it drew from 18 inches to two feet loaded; when it was light it wouldn't draw over 8 or 10 inches. I never heard them say that they had much of any difficulty in navigating the river

as it was then. Edward and John Jesup both died a good many years ago. Their father died fifty or sixty years ago.

I knew the late Mr. Henry Fish in his life time. He told me that he had a saloon at the Aux Sable locks, at the mouth of the Aux Sable river where it crossed the canal. We used to joke with him about his tapping his barrel at each end.

He told how he got his whiskey down there, and as I
253 understood it from him nearly all the time he was there it came down in boats from Chicago. That was the first time I ever heard about the cut-off down there at Chicago from the Chicago river to the Desplaines. There was a cut-off there where they went through in high water. There was a portage when there was not high water and a water communication when there was high water.

Q. Who told you that?
A. He told me that.
Q. Who?
A. Mr. Fish.

Objected to.

That is what Mr. Fish told me. He said they could bring from four to eight barrels of whiskey at a time in high water by boats from the Chicago river down through the cut-off into the Desplaines river and from the Desplaines down to the mouth of the Aux Sable and up the Aux Sable a hundred rods or so to where his place was.

He told me they were Mackinaw boats. My recollection is he said he was there several years. Whether he got his whiskey that way all the time or only in high water I couldn't say. After pay day he said he sometimes sold a barrel a day to the men on the canal.

254 As I understand it it was a matter of accommodation at times that they would bring down other merchandise or whatever they wanted, tools, iron bolts and such like.

I know Swalms or Davidson's quarry in Joliet. I knew Mr. Swalm very well. It is located about a mile and a half or two miles southwest of Joliet near the head of the lake, a little above and opposite, on the other side of the canal. It was probably 150 rods nearly from the river. I have seen the road leading from where the canal is now down to the river below Brandon's bridge many times. I think I first saw it in 1856. It was a good road across the flat there and looked as though it had been filled in with strippings from the quarry. There was then stone and other material in the road

and it was deeply rutted as though heavy teams had gone down there with heavy loads. At its terminus at the river bank it came to a deep hole that was in the river at the head of the lake. There is a sort of a bend in the north end
255 of the lake and the deep hole, and from there on down it was still water. It looked as though it had been a landing place, I don't recollect of any dock.

They told me at the time, and it was the current reputation that it had been used to haul stone from Swalm's quarry down to the river there and load it onto boats. I don't know what for.

I have used the river myself a good deal. I have been up and down the river a good many times up to twenty years ago, that is, about 1885, from the time I first came here. I have been up and down with boats. I have been down with teams and crossed it at various places and fished it and hunted it a great deal.

In July, August and September the water was generally low, especially when you got below Treat's Island, but in the spring and fall there was a good stage of water always. We used a two-oared and a four-oared boat. We had from three to six of us in the boat. There were six of us at once that went down and camped below Rock Run. We all
256 went down in a boat together; that was in the fall of the year, about half way up the lake from Treat's Island, two and a half to three miles up the river. We had our tent and camp equippage and provisions. It was a four-oared boat, 18 to 20 feet long. The outfit would be 250 to 300 pounds. The boat must have drawn from 18 inches to two feet of water.

257 I identified this history of Will County by George H. Woodruff in my former testimony.

COUNSEL FOR COMPLAINANT. I will read in evidence here page 251 of that book.

Objection as incompetent, irrelevant and immaterial.

(Reading):

"John Norman erected the first flouring mill in Joliet. * * * About opposite the penitentiary there was an island in the Desplaines heavily wooded, a romantic spot where the writer often went in search of plants and flowers. At the head of this island across one channel, Norman built a brush and gravel dam, which threw the current strong upon the other side. Near this he built a

log mill. His wheel was placed in the current and the shaft running into the mill turned the machinery which ground the grain."

COUNSEL FOR COMPLAINANT. I also give notice to counsel on the other side that we expect to read from this book more at large at the hearing.

The Joliet Directory of 1875 (in which the Woodruff lectures are published) was in general use and circulation in Joliet in the year 1875 and the years following. It was the only one published at that time. I don't think there was any one published after that until 1881, '2 or '3, somewhere along there. I have always taken and preserved the directories. I have a large number on hand now. This di-
258 rectory was in general use and circulation from 1875 to 1180. There was no other in use.

I know Alexander's quarry. I have been there twice since the first testimony was taken in the case in January. Mr. Johnson and Mr. Anderson went with me the last time. We went to examine the quarry. We went all through it, from one end to the other, examined it thoroughly, and saw the floor of the quarry. There were leaves on it, but no indication that it had ever been excavated lower.

They measured the stones. My recollection is that twenty inches, I don't know, twenty inches, or perhaps two feet, was the thickest. I didn't pay attention to that. They attended to the measurements and I looked after some other things.

We also counted the piers of the Kankakee aqueduct. I had a man take a boat and we went out all around the piers
259 and across the river. The thickest stones in the piers were 26 inches thick. There was no stone as thick as that in the quarry. There was no indication of any ledges thicker than 20 inches, I think it was.

I have known the witness Comstock well for forty or fifty years. I had a conversation with him on the subject of boats coming up the Desplaines river.

Q. You may state whether or not he made any statement to you as to boats coming up the Desplaines river and the method by which they came up?

Objected to as immaterial and improper.

He came to my office one day and I asked him if he knew anything about boating on the river. He said he didn't know anything about the river anyway, that he was hardly ever

on the river, but had surveyed up and down the banks and knew something of it. We talked for perhaps half an hour. He was very deaf. I had to halloo in his ear. I asked him if he didn't know anything about boats carrying stone down the river, and he said he didn't. I asked him how they got those large boats up over the rapids at Treat's Island. "Why," says he, "they warped them up; they put a tackle, fastened at the end of the bow of the boat, and they would take that tackle away up the river and tie it to a tree and draw the boat to that and take the tackle up to another tree and work on over the rapids." "Well," says I, "how long would it take them to get up over the rapids there?" "Well," says he, "it would not take them over half an hour."

That conversation was probably four or five weeks ago.

260 (Right of further examination in direct of witness Stevens is reserved, but he is submitted for cross-examination because counsel have expressed a desire to cross-examine him this afternoon.)

Cross-Examination.

I think Mr. Comstock came to Will County with his father somewheres about 1834 or '36; I don't know exactly. He has been here some twenty-one years longer than I.

I never noticed anything wrong about his faculties except his hearing. I was asking him if he knew of boats carrying stone down the river to the aqueduct and he said he didn't. Says I, "Did you ever know of any boats going up and down the river?" And he said, "No, not particularly," or something of that kind, and I don't know whether I said it to catch him or how it was, but I wanted to know if he did un-

261 derstand anything of it, and I asked him that question, that I didn't understand how they ever got those big boats back over the rapids there.

Q. When he was describing the warping of boats wasn't he describing how it was done on other rivers?

A. Well, he might have so understood it, *but I particularly mentioned getting the boats back over the rapids at Treat's Island.*

Q. He might not have heard you say Treat's Island?

A. Well, he might not; but I said it nevertheless. He might have understood it in that way, but I certainly asked him, that I didn't understand how they got those big boats

back them over the rapids at Treat's Island, and he said they warped them up.

He was not talking about any other part of the United States. We had not talked of any other river than this one. I had not asked him about any other river and he didn't talk about any other river that I recollect of. I might have asked him about the Kankakee, but it was about this river here, how far up and down the river he had been and all. He didn't remember of any boat going up and down and he said he hadn't heard of boats carrying stone down the
262 river. He answered me readily and I understood it to mean that he understood what I asked him, because he was a man of intelligence.

Yes, Mr. C. A. Munroe and Mr. Charles E. Kercheval came to my office last month and talked about my affidavit and knowledge of the river. My statements to them were correct. I had no desire to attempt to conceal anything or fool anybody. I was describing the thing as I believed it and understood it at that time. I discussed the fact that one of the Jesup boys had brought some lumber down the Kankakee river to Channahon. My recollection is that he was eighteen to twenty years old when he came there and his brother was older, about twenty-four. That was in 1834. That
263 conversation with me was when I was teaching school there at Channahon in the fall of 1856 and '7. I commenced there the first week in September and taught until along in January. I went hunting with Edward several times. It was when we went over the cut-off to hunt he used to tell me what a splendid place that was.

I don't recollect going to the cut-off with Mr. Jesup but once or twice. I went with several parties there. It was very convenient to go with him as he lived right near there and had a boat. We would go down the DuPage into the Desplaines then the Desplaines to the cut-off, and up that.

The testimony I gave was, as I recall it, the substance of what the two Jesups told me in the fall or winter of 1856-7. I recall of one or two other parties there going with them and carrying grain to get ground, and they would help navigate the boat to pay for their passage. I told Kercheval and Munroe that Mr. Jesup told me of carrying grain to Wilmington, but not on a wagon.

264 I am positive that I never mentioned a raft to them directly or indirectly. I think it would be almost impos-

sible to float a raft up the Desplaines against the current. I didn't say to you that that was the only time that Jesup used the Kankakee or Desplaines. There were two Jesups. I recall staying at Mr. John Jesup's house several years afterwards and in the evening he told the story of his early life there in Channahon and how he spent his time and about his bringing lumber from Wilmington down the Kankakee. That is John Jesup. Edward was a younger brother.

His father's name was Isaac Jesup, and after he came there with his father they built a small flat boat and used it for that purpose.

Nobody told me about the dam at the mouth of the Desplaines river. There was not a dam there. That was in 1834 and 1835.

They didn't get any corn ground, as I understood it, ex-
265 cept when they carried it for other parties. I don't know; they might have carried some for themselves, but other parties would go with them and they would help navigate the boat and they would bring their grain.

Q. Who went with them?

A. I recollect Mr. Isaac Schermerhorn; I boarded with him. He told me about going to Wilmington through the cut-off.

It enters the Desplaines on the east branch within a mile north of the aqueduct. They told me they brought their boat down the Kankakee river and up the Desplaines when the water was too low in the cut-off. The saw mill at Treat's Island was commenced in 1836 and finished in 1837. The grist mill was built shortly afterwards. I got that information from parties who knew. The Jesups told me that after the saw mill was built at Treat's Island they didn't have to go so far for their lumber.

My recollection of it is that the saw mill was com-
266 menced in 1836 and finished in 1837.

When I first came here in 1855 I saw the end of an old dam on the Desplaines river there at the mouth; I never heard of a dam there except one that was built in the fall and went out the next spring. That is a historical fact. I never could find out that there was any dam there that amounted to anything and lasted long. There are some of the boulders of the foundation there still. I have seen it many times. I don't recollect much about it. I recollect some logs sticking into the bank on the north side of the

river and some boulders lying on the logs. That was probably fifty years ago. It was a little ways up, might have been a hundred rods or a half mile from the mouth; it was between the aqueduct and the mouth.

267 Mr. Fish told me he brought his whiskey down the Desplaines river; it was in the spring of the year and it was practically impossible to get to Chicago and back with a team. Teams did do it in the summer time when the water was not high. There were no bridges across the sloughs and flat places, and they couldn't get to Chicago with a team except when the water was low and when the ground was dry. I have got that information from many a person. I couldn't give the names of any persons. It was general conversation that there were several months in each year it was impossible to get from here to Chicago with a team. I asked Mr. Fish how he got his whiskey down there when the roads

268 were bad, and he said they brought it down in boats. Whether it was more than one time or forty times I couldn't tell. I couldn't give the year. I think he went there about 1837 or '8, and he was there three or four years. I talked with him several times about it. He didn't talk about how they got the boats back; they might have sailed it back or warped it back, as Mr. Comstock described.

I didn't see Woodruff's manuscript before it was printed. My knowledge as to Mr. Woodruff writing these books is what he told me. He told me he had written that, that is, the history and the lectures. He came to Will County in 1864.

269 The passage in it that said 1878 "boats are now plying between Wilmington and Kankakee City and Chicago, carrying grain," went this way. They went down the Kankakee river through the Kankakee lock, what is called the

270 upper lock there above the feeder, into the feeder, down the feeder into the canal and right up to Chicago. They didn't go into the Desplaines river except in the basin, but in 1834—as to the stone from the quarry I said I was told they were loaded onto boats and taken down the river. I said I understood that they were used in building the aqueduct piers.

I don't recollect the names of the persons that told me.

271 I used to live down there. I didn't see the stones shipped up. I made an affidavit in this case about the

20th of December, 1907. There was one mistake in date in it which, when you called by attention to it I had corrected. It said 1855 when it should have been 1835.

Q. That was the only mistake?

A. I stated it as a fact and I should have stated it as information and belief.

Q. You stated under oath at that time that "affiant further says that he knows of his personal knowledge that the Desplaines river was navigable and was navigated for a period of from 15 to 20 years after November, 1855, and that said river was navigated for commercial purposes during at least six months of each year, except as the same was interrupted during a part of that time by dams at the City of Joliet in Will County. Affiant further says that boats plied on said river of approximately the size of 30 feet in length and about 7 feet deep, and that said boats would carry from four to five tons of merchandise or freight, and would draw from a foot to 18 inches of water when so loaded. That said boats were propelled by sails, poles and oars."

I ask you if you did swear to the above stated as read to you?

A. It should have been 1835 and on information and belief. I heard these boats were loaded with whiskey and loads of corn. They were Mackinaw boats. I have seen a
272 great many of them. Mr. Fish told me they brought down three or four barrels of whiskey. He may have told me the size of the boats. He said it was brought down for him. I never heard of teams going back and forth to Chicago every day from the Aux Sable. I never knew of a stage being built so as to carry a barrel of whiskey. It was about twenty years before my day, some of it. When I hear good men tell me things that are true I take it for granted it is a fact, especially such a man as Mr. Woodruff or the
273 Jesups. I knew them well. I cannot at this late date describe every instance that I have heard of the river having been used for commercial purposes, not at this late date. It is too long ago. Personally I don't know of the commercial uses of the river. I did not say that the boat coming up to Treat's Island and Fish carrying his whiskey down and Jesup bringing his lumber were the only instances I knew. I said I knew those as instances.

I have heard of the rafts coming down; I have heard of boats coming down. I can't remember for fifty years any

better than you can. Mr. Woodruff's lecture was not over thirty-five years ago. It is only what they told me, what the two Jesups and Mr. Schermerhorn and Mr. Fish told me and what I got from Mr. Woodruff's lectures and his book.

273 There is no impression about it. I take that to be a fact. Yes, I made the statement now that the river was commercially navigated for at least six months each year.

I am employed by the State of Illinois in this case. I was first retained sometime in November. I have been interviewing witnesses and procuring witnesses. I have got a few. I went down to see Mr. Reed at Stark County; I went to Aurora and some other places. I suppose I am in their pay. They haven't said anything about it and I haven't asked them. Mr. Riley asked me to attend to this. He is the representative and he said he wanted I should take charge of it and would see that I got my pay, but I haven't got anything yet.

275 Directory withdrawn from attachment to the deposition and notice that complainant would read further from it at the hearing and keep it accessible.

276 HARLOW H. SPOOR, a witness for complainant, testified as follows:

Direct Examination.

My birthday was July 3, 1820. I was born in Lyons Township, Ontario County, New York.

I landed in Chicago and came to Kendal County September 20, 1844. I took up my residence in Will County, Jackson Township, as a school teacher November 2, 1844. I made a settlement there in the spring of '44, bought real estate there, made my residence there until '54, when I came to Joliet.

The attention of the witness is directed to the item 277 from the Joliet Signal, June 8, 1847. Asked whether he knew of that event. "I recollect of hearing of it at the time."

The attention of the witness is directed to the passage 278 read from Woodruff's History in the deposition of Mr. Stevens, about the boat coming up the river with grain and dipping water at Treat's Island.

I remember of hearing of the circumstances. It was the

current report by men that I believed to be truthful and had no interest in it other than that.

I knew George W. Reed. He had a farm about three miles from where I lived. It was in Reed's grove. His father
279 held a good deal of property in Will County and held a farm there. He inherited it from his father. I was acquainted with him as a young man, grown.

I taught school at Jackson's Grove. I knew William Gooding, the chief engineer of the canal, by reputation, not personally. I knew Mr. Matthewson, the surveyor on the canal, very well.

Cross-Examination.

I did not have to go to Chicago before going to Jackson's Grove. I went to Chicago in 1845. I went afoot part of
280 the way and got a ride with a man with a load of grain. I followed the river part of the way on the west side. There was a wagon road. We met some teams. They hauled their grain by wagon. I don't think they hauled it by boats because they had no way of hauling them. I don't know that I ever heard of a boat going from Joliet to Chicago on the Desplaines with grain or merchandise, that is not about their going through the whole length of it, only this circumstance about the boatload of grain I was telling you about. That was common report at the time. I know something about the rivers. I crossed the river at one time, and only once I guess at the mouth of the Desplaines where it goes into the Kankakee I crossed in a buggy. In some places it was pretty deep and some of the places it was rather shallow. As to whether this boat came down the Kankakee and up the Desplaines river I couldn't tell you. I know nothing whatever about it except what some one told me.
281 There was a fording place there and they had stones marked out to show the drivers the current there. There is no other boat that I heard of that occurs to me now so directly as this one circumstance.

As to the men being drowned about June 8, 1847, I knew it only by report. I never was in the Desplaines river in a boat myself. They hadn't many boats on the river. The kind of boats I refer to when I say boats were called canoes or row boats. I saw some of them in Lake Joliet and down below there. They had a sawmill at the foot of Treat Island. I saw them working on a dam on one side of the

river to turn the water on the other side of the island for a saw mill. They used to have a mill there and we got our lumber sawed there at the mill. The dam was across only one channel. It was across the west side of the river.
282 I saw the relic of a mill at Treat Island in 1831. It had been abandoned; it was not in operation. It was a log mill. The dam at Treat Island only went from the island to the west shore. I don't think it went clear across the river. I first went to Treat Island in 1845 and was there several times. I went to Beardstown. I don't recollect whether there was a saw mill there or not. I never examined the river down at Beardstown. I came here in 1844 and
283 in '46 I went to cutting lumber to build a house and got the logs in Trautman's grove and hauled them to Treat Island to the saw mill to get them sawed. There was a saw mill on the west side of the Desplaines river. There was the remains of a grist mill that was located on the east side of the Desplaines river. I could not tell exactly when I first heard about a paragraph of this kind in the book. I heard of a history of Will County written a number of years ago. I forgot who wrote it. I read some of it. I don't know that I read it through. I think I remember having read the passages that were read here about the boat. I don't rec-
284 ollect at the present time any other boat that I ever heard of that ever attempted to go up or down the Desplaines with merchandise. I may not understand you. I think I heard of this accident with the boat, but as to whether that boat was going up and down the Desplaines river with merchandise, I couldn't swear positively as to that. As to whether it is a fact that this boat that had the oxen on it and the men was used for bringing stone across the river to riprap the canal and to bring employes across the river who were engaged in constructing the Illinois and Michigan canal, I couldn't swear positively as to that. I know that when they were building the dam across the Kankakee river that they had a boat that they hauled rubbles on, or stone and filling in for the dam. They had a boat they used to tow up the canal and river and across from one side to the other and then it froze and they had to put on a pair of horses and pull it out of the ice. I could not remember the precise date of the boat at Treat's Island; I was not interested. I could not say I ever went and saw the boat. I could not tell who owned the boat. I could not tell where it was going to or who built it. The boat in crossing the river got sunk.

285 JAMES R. FLANDERS, a witness for complainant, testified as follows:

Direct Examination.

I have lived in Will County all my life except when I was away in the army and at the university of Ann Arbor. I will be 62 years old August 27th. I have lived close to the Desplaines all my life. I was acquainted with the river as a boy from my earliest recollection. I hunted and fished on the river as a lad, in vacations went home there about the river and in '67 or '68 I had my first boat and from that time probably up to about ten years ago I used the boat
286 every year. My boating has been mainly from Joliet down stream to the mouth. The average depth from Joliet to the mouth (excluding the deepest places in Lake Joliet and Lake DuPage on the one hand and the extreme shallow point on Treat's Island on the other) would be from three to four feet. In Joliet Lake there are places I think 18 to 20 feet.

We used three classes of boats, canoes, flat-bottomed boats and clinker-built boats. I have gone down on flat-bottomed boats with parties of six or seven people and camp equipages. On one or two occasions we had a large flat-bottomed
287 scow-built boat. It would draw loads from ten to twelve inches of water. We found that amount of water or more. A greenhorn could not have got through on account of the rocks. A man that knew the channel could go through with a boat in from a foot to 16 inches of water. It might possibly have been less in an extremely dry season. There are three shallow points. There is a ledge of gravel at Brandon's bridge and a shallow point at Treat's Island and another shallow point from a quarter to a half mile this side of the junction of the Desplaines and the Kankakee. Our party of seven went down in '68. I have been over the river since the flood of the drainage canal has been turned in, that is since January 17, 1900. There is very much more water since then, very much more indeed. I found at different times it was down almost to normal. That is when the water was shut off, when the three young men were drowned and
288 the water was shut off. They were hunting the bodies and it was said that it ran the lowest it ever ran. That

was about three years ago last summer. A certain amount of water has been taken from the Desplaines river for the purpose of feeding the I. and M. canal for many years. It is fed from the Desplaines river, from up above the Ruby street bridge; there was a projecting embankment there, projected out into the body of the river so as to divert the water from the river into the canal, and there was a foot-path and a bridge thrown across. It was one of the main feeders of the I. and M. canal and increased the water in the canal very perceptibly. For some little distance above that
289 point the I. and M. canal and the Desplaines river coincided in their course. That was prior to any work being done by the Sanitary District. The canal was steered into the river, and then it was steered out again, and part of the river was steered into the canal along with it. Referring to this profile map, Joliet Mound was located about three-quarters of a mile north of Brandon's bridge (in Sections 18 and 19). The canal changes its direction when it ap-
290 proaches Brandon's road, so that people could hardly tell their direction unless they were posted.

Cross-Examination by Mr. Munroe.

When we took the boat with five to seven people it was put into the Desplaines river just below the Adams dam.
291 We left the boat at Ottawa. We did not bring it back; we did not take it down for that purpose. We could have taken it back if we wanted to in the I. and M. canal. I have done that hundreds of times. We owned the boat and we had no objection except we were not looking for toil. We could have brought it back. I have been down on the canal and down on the river with larger boats than that. We could not rely upon the wind, although we had a sail, and
292 there were rapids that we could pole by. We had to pole it. Anyone as skillful as an Indian might possibly have rowed it, a boat of that size, but in those rapids with two poles and two of us in it you could do it. There were three of the rapids we would have to pole the boat to get over the rapids. No, sir, we did not get out of the boat at any time. A greenhorn would get wrecked because there were rocks, some visible, others not, but there was a channel through them. He might not if he would sit right down and let the boat go down. I presume I have been on the river a hun-

dred times. Through neglect or mismanagement I have been caught on the rocks. One occasion I remember particularly we did not get out and pull the boat. We got out and
293 the boat tipped over. That was at Brandon's bridge. There was never any other point where I was wrecked. I should say the rapids near the mouth of the river are perhaps 25 rods up. I never regarded it as dangerous to go through those rapids. Of course a person must understand a boat and must know the channel. A person who did not understand the boat and did not understand the channel would be liable to get tipped over. I don't think it would be as hazardous down there at the junction of the Des-
294 plaines and Kankakee as at Brandon's bridge. Since the Sanitary District water was turned in we took our boat in at Brandon's bridge and floated to the mouth of the Desplaines. I don't think it is hazardous in the present condition to go down the river if a person understands the
295 boat. I never heard of any person being capsized on the Desplaines river since the drainage water was turned in. I never experienced any great difficulty in going down the river to the mouth of the Desplaines. We generally came back by the way of the I. and M. canal, making a portage of about 20 rods in the canal. We never attempted to come up any great distance since the Sanitary water was turned in. The difficulty would be the swiftness of the current. I have seen the time when I could pick my fellow, we could not go up in race-horse time, but we could make it, give me Clement in the stern with two paddles.

Q. You have shown a very considerable knowledge of the Desplaines river. Assuming that dam number one was taken out and that there was no dam in the Desplaines river
296 between Lockport and the mouth of the Desplaines river, assuming that the bridges were taken out, I will ask you would it be possible, in your judgment, for boats to go up and down the Desplaines river in its present condition today with those changes made?

A. Possibly for boats?

Q. Yes.

A. Yes, sir.

Q. To go up and down?

A. To go up and down. There is a fall from dam number one to South street to the south limits of about 35 to 40 feet. A boat could go up there without locks and dams by warping it up by snubbing posts along the shore, just

as they do on the Mussel Shell Shoals in Tennessee, but I don't think it is a practicable way. I think it could be
297 done. You understand what I mean by warping. I remember the current reputation of the early use of the stream by people when they warped up the boat. Warping would not be limited to boats of small size. It would depend upon the amount of power. If there was water enough and power enough you could warp up a man of war.

Mr. MUNROE. I ask you from your opinion of this river to state whether or not the Desplaines river, if dam number one were removed and the bridge were taken out is suitable or adapted in its present state for carrying the commerce of this country adjacent to it without improvement or by means of locks?

Objected to as not cross-examination.

A. Oh, I don't think it would be without the construction.

Re-direct Examination.

Q. You have been asked on cross-examination to consider the river with the removal of all existing dams, otherwise not changed, and with the 300,000 cubic feet per minute of drainage water passing through it; now let me ask you, assume for the moment that the improvements which are outlined in
298 the survey of 1905 by the United States Government which provides for ten dams with appropriate locks between the north city limits of Joliet and the mouth of the river were put in, with dams which are broad enough and strong enough and locks which were wide enough to accommodate Mississippi river craft of the largest size floating on the Mississippi river, that is the description of the report, I will ask you to state whether the Desplanes river under those circumstances would be capable of handling and carrying the commerce that is arising out of the territory immediately adjacent to it?

Objected to.

299 A. I think it would.

I have personally been present on a boat that was warped up stream in the way I have described. It was on the Tennessee river at Mussel Shell Shoals. One time during the service we took a steamer there. There were perhaps 300 of us there. There is a great deal of warping done. The men were on the shore helping do the warping. The method

consists of having a hawser at the bow lashed somewhere between the bow and the midships and it is taken up the shore, up stream, and made fast to a snubbing post or tree or any object that will hold. Then the nose of the boat is turned into the current and another hawser is made fast to the bow and as the boat sheers into the current it sheers off to the right if you are going north, say, and of course makes progress up. This rope that is made fast to the bow is hauled on until the boat is parallel with the line that is hitched first until it is right-angled with the shore. Then the boat is allowed to swing back to the shore and the process repeated. I have seen the boat go that way 40 rods at a time. That was on the Tennessee river, I could not tell how many times. I have made the trip down the St. Lawrence from Thousand Islands to Quebec by steamboat through the Lachine Rapids and the narrows of the St. Lawrence. And I have seen boats come back through the canal that runs right alongside of the St. Lawrence. They shoot the rapids going down and would come back by the canal.

OBADIAH HICKS, a witness for complainant, testified as follows:

Direct Examination.

Age, 78. I have lived in Joliet since 1862. My business was canal boat building principally. I carried that on in the old country before I came here. Was dry dock building in New York in '54 and '55. Came to Lockport in '58. Worked at canal boat building then. Came to Joliet in '62 and had a dry dock of my own here and worked at that.

Q. Were you acquainted with the local reputation as to the exploration and early use of the Desplaines River and the use of it by boats prior to the opening of the canal in 1848?

A. No, sir, only what I have heard others say.

Q. I asked you if you were acquainted with its local reputation from what you have been informed by others?

A. Yes, sir, some, because I was making inquiries about the stream in hopes that sometime it would be a ship canal and then I would have some of my business to do on it; that is the reason. It was general talk around the boat yards when I came up here, you know, about having this for a ship canal.

That was before the canal was opened. There was some boating on it, mostly trappers and hunters that came up through there. I observed that prior to 1860 there used to be more water in the river in the summer time than there was
302 after that for some years. That was because the farmers were draining their lands about that time everywhere by ditching and tiling. The tiling and draining dried up the sloughs and then in the summer there was no water in the river. It was lower afterwards than it was before the putting in of the drains. I have been fishing up there prior to 1860 when the water was two feet and some places four feet deep. After that in a very dry summer there was no water running through the river at Lockport. Of course there was plenty of water in the spring and fall.

Cross-Examination by Mr. Munroe.

I have seen it in a dry summer when there was no water running under the bridge at Lockport, two or three times. There was some water coming out of the back water that was running under the east bridge, but not under the west bridge at Lockport. The west bridge carried the channel of the river. I have seen it so low there that it did not go over the
303 Jefferson street dam, sometimes, only just enough water to feed the canal. It used to take all the water to feed the canal sometimes.

Q. Did you ever hear of anybody taking any grain or merchandise from Joliet to Chicago by way of the Desplaines river?

A. No, no, not till recently. I haven't heard of it.

Q. Who did you ever hear it from recently?

A. The papers, and some fellows that have been talking about the evidence they were going to give and so on.

Q. Who ever told you that they knew of grain being taken from Joliet to Chicago by way of the Desplaines river?

A. I couldn't say that, but I understood there was a cargo loaded in Kankakee and brought down to Treat's Island, a cargo of grain and they wrecked the boat there and lost the grain.

Q. But did you ever hear of a boat going from Treat's Island to Chicago?

A. No, sir, not of grain.

Q. Or with anything else?

A. Why, yes I have. Not to Chicago; but go to the headwaters of this river. I have heard of trappers' boats going up there.

Q. Going through the Desplaines river to the mouth of the river?

A. Not to the mouth. Up to the turn there at Riverside. They would go up there, they couldn't go any further.

COUNSEL FOR COMPLAINANT. He refers to the portage there?

The WITNESS. The river turns and goes up to Wisconsin then you know. They would go as far as the turn.

Q. Who did you ever hear went up there?

A. I heard a man here in Joliet says he had gone onto the boats, and talked with the trappers and examined the skins on the boats.

Q. What was his name?

A. William Found.

Q. How do you spell his last name?

A. F-o-u-n-d. He is on the streets most every day.

Q. How old is he?

A. How old is he?

Q. Yes?

A. He is older than me. He is somewhere around 80 I guess.

Q. And the first time you heard about that was since this trial came up?

A. Yes, sir.

I have heard that the trappers used to be up around here. I have heard others state that a good many years ago.
304 They were not canoes, they were bateaux. That is what they called them, a bateau. They were boats about 20 feet long and the sides of them were about three or four feet high and they had a little deck on one end, or a little cabin and they loaded their skins on there and put a canvas over them, generally, and they used to come up here to the big island, I understood, and stop there during the winter and trap and hunt there. They would go as far up the river as they could go and then have to wagon them to Chicago, put them on wagons, that is what I understood them to say. They would go up to hunt and trap all winter at the big island, so he told me, and then would go in the spring and unload them and then go back again down the river. That is not of my own knowledge. I was not here. In 1858 I came to Lockport. When it was dry a bateau could not go up or down the Desplaines river. There was plenty of chances to go in the spring and fall. They could go down fast enough and they

could pole them up, generally, and rope them up, and so on. They could pole them along the middle of the river. I never saw a fence across the Desplaines river, not right across the river, because it was always considered that the middle of the river was a navigable stream and belonged to the Government, and they were not allowed to put fences across the river.

Q. Who do you say contended that?

A. Why, I know of a case that transpired while I was in Lockport. There was two farmers owned some land that run down to what they called the big island there at Romeo and there was a tree grew right on the line fence, and one
305 farmer cut it down. Tom Williams was one and Robinson or Anderson the other. The other sued him and the matter was carried to Washington. Charles E. Boyer carried it to Washington and got a decision and his decision was that the tree did not belong to either of them; it belonged to the Government because it grew in a navigable stream. The old tree lay there for a good many years afterward. I got my information from ex-Surveyor A. J. Mathewson, the old county surveyor. He told me more than once, and he told me where the termination of the river was. Some man's house, he told me, I forget his name, whether it was Nickerson, or something like that, he had been over the ground and surveyed and knew all about it. He surveyed for the old canal and the Ogden ditch, and he was well acquainted with that. He told me that the Government reserved this river toward a link between the lakes and the gulf. Now, that is what I understood from Mathewson. Ex-Surveyor Noah Whitley also told me that he had examined the state records at Springfield and there was nothing to show that the Government ever relinquished its claim to the use of the river below Jefferson. It gave the canal authority to
306 put the two basins in here, but they were to keep it open perpetually for navigation.

Re-direct Examination.

I don't know who these trappers were working for; they were working for some company. They went all over down the river, I understood.

308 GEORGE ALBERT PARRENT, a witness for complainant, testified as follows:

Direct Examination.

I am sixty-five years old. Live in Joliet and have lived in Will County ever since 1853. Have been acquainted with the Desplaines river continuously since that time. Have gone upon it in boats. My last boat was 19 feet 10 inches long, 17 feet on the water line, 5 feet beam. It had a three-inch keel on the outside and it had a sail. I have carried 1,500 pounds of luggage, two men at 200 pounds apiece, they would weigh that or more, and a couple of hundred pounds of decoy ducks. I would go down twice a year, in the spring and again in the fall. From the early use in the spring to
309 the latest use in the fall it would be about five or six months between. At the head of Treat's Island was the shallowest places. I have been through there two hundred times. We used to go pretty often. I have gone down
310 there when the water at the head of Treat's Island was four feet deep on the riffles. At the shallowest place we could go up there with a boat drawing 18 inches of water. I have never seen any scows or float boats or boats of that kind on the river. I once loaned two boats to a man on the island to haul his hay off the island. I had two boats there 14 feet long; they were 27 inches wide on the bottom and 44 on the top. He put the two boats together and took a big load of hay off the island there. I know the location of Davidson's quarry. It is about a mile back from the river. There was a road connected it with the river. I used to see it before there was any bridge there. I have noticed the road in particular coming down where it touched the river. The road came down at right angles to the river and then a road branched off and went down to the round place at the head of the lake. Right there there was a deep hole. There was a well traveled road went right down to
311 the place; it was filled up as a regular road. I noticed the road there in the fore part of the fifties, when a man was drawing a seine there. There was a big cove in there and the water was deep and at the point where the curved road came down to the water's edge it was five or six feet deep. There was no ford way or roadway across the river at that point; they couldn't get across there. It was

too swampy on the other side; they couldn't have landed. If they had driven in there they couldn't have got out and the water would have been too deep. The road from which this branched off did go out across the river at a shallow point. That road coming down to the river at the deep point must have been for loading material onto boats in the river, because there were stakes driven along the side. They said they had to be careful about the stakes when pulling in the seines. I noticed them, and it looked as though they were driving right along there for a dock there, a kind of land-
312 ing place. I noticed it on account of the pulling in of the seine there. I couldn't say what they used it for, I never heard anybody say what they used it for. I remember the making of the deep cut by which the Chicago river was connected with and turned into the I. & M. Canal, back between 1867 and 1871. That has filled up the bed of Lake Joliet with mud and made it shallower than it was before. It naturally would, because there is no current in the lake.

Cross-Examination by Mr. Munroe.

I have probably owned forty or fifty boats on the Desplaines. They have been row boats, except this one that was a sail boat. The sail boat had a 16-foot keel, 19 feet 10 inches long, 17 feet on the water line, 5-foot bottom, 14-foot mast, 11-foot boom, 6-foot gaff. I used that boat on the river from the oatmeal mill down to the mouth and back again. George Abbott used to go with me in that boat and Sam Cutler. Cut-
ler is dead. Abbott lives here. This trip went from
313 Hickory Creek down. It drew 17 inches loaded. We went to the mouth of the Desplaines river, up the Kankakee to the first island. That was about the first of March. The creek was up; the river was not up so high. The river was about the same as it would be any time in the spring. We came back up over the riffles. We didn't have any difficulty in pulling it over the riffles. One man would get out of the boat and the others would stay in and keep it away from the shore, standing up with the pole. The other was on the shore pulling on the painter and that occurred right at the rapids at Treat's Island. We had to pull the boat that way probably 30 or 40 rods. We did not experience any other rapids that bothered us in our course. We came right along up the river. We brought it up beyond Davidson's

quarry there and then we pulled it out and put it into the canal because we couldn't get any further on account of
314 the Jefferson street dam. We came opposite the oatmeal mill, just below Porter's brewery. We didn't pull it up stream from Brandon's bridge to the oatmeal mill or the dam, because we put the sail up and the wind was good and sailed along. You could sail it up now. We couldn't row it up very well. I have rowed skiffs up, but that boat was too large. Mr. Abbott went with me that trip. His three sons have gone with me on such trips. It was 1875 or 1876 that we made that trip with Mr. Abbott. I was over forty; I am sixty-five now. I saw this road down to the river about 1854 or '5. I was fifteen or sixteen. I was seeing the man seine; I was not drawing the seine myself. It was all open prairie then, no fences. I couldn't say whose land it was. The road was right there at the head of the lake.

(Witness is shown the township map, showing Lake
315 Joliet, Patterson's Island and Brandon's Road.)

It was right on this bend (indicating). I was at least nine years old. It was a well beaten road. There was stuff thrown in to make it. I don't know, but I should not think it was used just to drive horses down to water. I knew all about it at the time; I knew there was a road there and I have always known it since and I know it now. I don't think the road is there now. I haven't been down there for seven or ten years. I could find it if it is there, if the snow is off.
316 The ford that crossed there was right above the bridge, where the bridge is now. They crossed on either side, because there was a stone bottom there. I don't think it would have been as far south of Brandon's bridge, as ten rods. It would be too wide there. I have seen the ford there before the bridge was built and gone across it. There was no bridge when I was first around there. I have gone down the Desplaines when I did not have to get out and pole the boat along. I have gone down in June and did not
317 have to take the boat out to get over the riffles. There was a young fellow with me. I have come up the Desplaines river at other times without having to get out and pull the boat up from Treat's Island up to the oatmeal mill. I cannot say from the mouth of the river. Yes, we rowed the boat right over the riffles. It was a light boat that only weighed seventy five pounds. I couldn't say whether we could do it today under the present condition of the water,

because I haven't been down there to see. Yes, it could be done today, and a motor boat could come up there today.
318 I have ridden in motor boats. They would go ten miles an hour in open water and five or six miles in the canal. I have gone from here to Channahon in it. I don't own a motor boat myself. Albert Keeling owned that. It went about five or six miles an hour when I rode in it. It was a ten-horse power boat, 36 feet long, covered in, with a full cabin. I don't think that boat could come up the Desplaines, because it didn't have power enough.

I have made an affidavit in this case. I don't think I said anything about hay being conveyed on the Desplaines river on boats in the affidavit, but I have seen men carry produce up and down there, I mean meal and flour, to cook. I don't know that I ever saw anybody carrying things on the Desplaines river to sell. I always took supplies when I went down the river hunting. I did not try to buy any. There
319 is a place down there at Channahon about two miles from the river where one could buy. There used to be a place at Dresden and another at Au Sable. You can't now. I have carried corn and wheat, but only in sufficient quantities to feed myself while hunting. I have carried a load of 1,500 pounds at a time, ammunition, tents, stove, bedding, decoy ducks, traps, rubber boots, beds, food; there were three of us. I did not take the hay off of Treat's Island. I let a man take my boats to get the hay off. Do you want to know where I took hay off? It was up in the DuPage river, in the summer time, that I let a man have my two boats to get it off. It was about a mile above Channahon. We would put the boat from the Desplaines into the DuPage by locking it into the canal at Channahon. We went down the DuPage river to fish. We went down by the canal. I have taken the big boat down to the DuPage river a good many times. I have been up the DuPage to Plainfield, two or three miles above Channahon with a small boat pushing; never had occasion to go further. I never took the big boat up Hick-
320 ory creek. We took it to the creek by taking the big rubble car from the house and running it down. I kept the boat on the dry land between the canal and the river, pulled it out every time with a block and tackle. I was down there looking for ducks when I saw them drawing the seine. They did not tell me to be careful and not knock the posts down. I think a man named Lampin said not to get into

the posts with the seine. They were talking to themselve
I stood there and talked with them.

321 Thereupon counsel for complainant offered in eviden
as Exhibit 4, an affidavit of Geo. Albert Parrent as fo
lows:

STATE OF ILLINOIS, }
COUNTY OF WILL. } ss.

GEORGE ALBERT PARRENT, of said county, being fir
duly sworn on his oath, deposes and says:

That he is now of the age of 65 years and that he has r
sided in Joliet continuously since the year 1853, and th
from his first coming to Joliet and for many years ther
after he was much interested in hunting and fishing and i
dulged in the sport at almost all seasons of the year. Th
he went up and down the Desplaines river often in boats
times as far up as the Goose Lake above Romeo, and down
its mouth, that the same was navigable for ordinary boats t
whole distance except when the same was obstructed by dar
across it. That said boating could be carried on for at lea
six months in the year, and in some years all the year exce
when obstructed by the dams and by ice. That the said riv
was navigable for boats drawing from two to four feet
water from the head of the lake below Joliet to the mou
of the river at all seasons of the year except at the rapi
at Treat's Island and they were about one hundred rods
length. That boats of like capacity could go up and dow
these rapids for at least six months in the year. That t
river above the dams at Joliet was navigable at nearly
seasons for boats drawing at least two feet of water, the on
obstruction being a small dam at West Lockport. That
high water the flats both above and below Joliet were so ove
flowed that like boats could go up, or sail there outside t
current without the least difficulty except for the dams acro
the same. That after he came here in 1853 he remembe
seeing a road from what is now known as Davidson

322 Quarry in Joliet to the head of Lake Joliet, and that t
said road was then a well traveled road and looked
though the same had been used for hauling heavy loads ov
it. That there was not then any bridge across or over sa

river nor was there any road leading from said river on the opposite or east side of the same. That this affiant was informed at the time that said road was used for hauling stone from said quarry to the river and loaded upon boats and taken down the river. That there was a deep hole at the place where said stone and other stuff were loaded and it was then plain to be seen where the loading took place.

(Signed) GEORGE ALBERT PARRENT.

Subscribed and sworn to before me this 8th day of January, 1908.

(Signed) W. W. STEVENS,
Notary Public.

(NOTARIAL SEAL)

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323 A man stood down there and told me that stone from the quarry was loaded on boats there and taken down the river. That was told me the same as it was about the abutments down there. I think it was later than 1853, somewheres along in 1854 or '55. He told me that was what the road was used for. The man stood on the aqueduct and told me things, too, about those men being drowned. The man stood right on the aqueduct and told me that that was there at the time. This road was built up with stones and stuff thrown in there. A man couldn't help but see it. These fishermen were there with us. I don't think there was a bridge there then. I said in my affidavit the river was navigable
324 for boats drawing from 2 to 4 feet of water from the head of Lake Joliet to the mouth of the river at all seasons of the year, except at the rapids at Treat's Island. There was never less than two feet of water at the mouth of the DuPage river. I never saw less than two feet at the mouth of the Desplaines. I say a boat could go up there six months in the year, drawing two feet of water. That
325 I know. It drew a good deal more than that sometimes. We could get it up without going on the bank; of course it would have to be pulled. You would have to use the capstan; you would not have to put a post on the bank. You could put an anchor at the head of the riffles and threw a line out and pull it up, do it with a block and tackle. That would be three or four months in the spring and the balance in the fall, touching the lowest points.

326 GEORGE ABBOTT, a witness for complainant, testified as follows:

Direct Examination.

I live in Will County just outside the city. I am in my eightieth year. Was born at Keene, New Hampshire, in 1828; came to Will County in 1853. My home has been here since 1857. I have been acquainted with the Desplaines river ever since. I went hunting and fishing on the river in the fall of 1857; have been down there ever since up to within two years. I then lived right at the site of the Rock Island depot in Joliet; kept a restaurant there eighteen years. I would put my boat into the river right where Malcolm's
327 dam used to be. There is no dam there now. Most of the time I kept the boat at Patterson's Island, below Brandon's bridge. I have gone sometimes twenty trips in a year, sometimes more than that. Two years ago I went down clean through to the mouth. That was in the summer of 1905. In 1857 I don't think I went below what was called Charley Smith's bridge. I went on down to the mouth in 1858 and practically every year after that, and sometimes several times a year. The water was pretty shallow just at the head of Treat's Island. They had built little dams across each of the three channels and turned the water into the third, in to the race of an old mill. It was pretty shallow in the summer season. You could run a skiff over it a good many times after the fall rains. The water was a couple of feet deep near the Malcolm dam. In Lake Joliet it varied awfully, all the way from three to four feet to the deepest place off Darcy's Bluff; that was 42 feet
328 deep in high water. That was before the opening of the deep cut, when the bad water came in. Since the drainage water came down it overflows lots more country than it did years ago. I remember that just before the Chicago fire there was a cutting made that opened the Chicago river into the canal. They turned in a lot of sediment and dirt and killed off every living thing in the lake. I have been down there when it looked as though you could walk right off on the water for an acre with nothing but dead fish, because it caused the sediment and mud to accumulate in the lake. There used to be a ford just above Smith's bridge. I have crossed it with a buggy. If you knew the track the

water would just about come up to the bottom of the buggy, sometimes come in. You had to keep at the shallowest point to keep the water from coming into the buggy. In low water, in the summer season, I have been across there when it
329 did not come in. I know where Joe's Island is. There was a ford there where you could cross when the water was low. I knew Shabbona, the Pottawattomie Indian Chief.

Q. What did he tell you?

Objected to.

A. He told me as to the French and Indian trading in furs up and down the river. I used to walk down with him Sunday mornings and he would stay at my house and we would walk down together as far as Patterson's Island. He told me about going up thet river in canoes. I asked him what the canoes were doing up the river here. He said they bring furs, they brought furs and took them up to the big waters from here, at Fort Dearborn somewheres. I asked him how they could pull over these riffles and he indicated with a cane "poled up." That is all I remember. That was about the outbreak of the Civil War when Shabbona told me.

330 *Cross-Examination by Mr. Munroe.*

The water was sometimes high enough at Treat's Island to float a skiff over it; that would be in the spring and the fall when we had big rains. That would be on the side next to Glidden's, on the left hand side going down. Mr. Mills lives there now. I have taken skiffs up and down a great many times; I always got out and lifted it over the riffles. The riffles were very shalow most all the way from the head of the island to the foot. There were spots we did not have to take the boat up and down over them that distance. There were spots where the boat would run along and then in spots there would be a deep place right along and you would get in until you would come to a riffle and get out again. The boats I used on the river were the ordinary skiffs. There
331 was a pretty strong current below the oatmeal mill and a good many boulders. In that strong current and boulders it would be hazardous in low water unless it was daylight. There were boulders that would come up close to the top of the water, but a man that was used to the stream could tell where they were. It was not hazardous to go down

there in high water if you kept the channel. It is not so swift but what a man that understood handling a canoe could pole up against it. No, a man would not not be capsized even if he was not skillful in handling a boat, but he would turn
332 around and go back toward the lake again. He is apt to go down in safety in high water. There were trees growing on this island and in high water the river spreads out and goes right through these trees, but a man going down with a boat would probably take the stream. There were three channels there. The current does not travel out through the trees. In high water any one of these channels would take a boat through. No, I do not think a man would be apt to go in among the trees and tip over, even if he didn't exercise great care. He would not do that if he could keep out in the current. There is a sand bar at the point where the DuPage river comes in. It comes kind of kittering down the river. Mostly you could float the skiff over the bar on the east or south side next to the DuPage. I have often stuck there. There have been times when you would have to get out and pole your boat along on the east side if you have
333 a load. There were some rapids about 600 or 700 feet from the mouth. It was swift there, but it was swifter right below the mouth where they used to have the old dam. The water is deep enough below that for the boats. There are a good many big boulders in there. The water makes waves now, but in those days there wasn't so much water running down. It wasn't bad getting through. We used to bring our boat back up the river. We would get out and pole it and pull it. It was not difficult or tedious. I did not used to think so. Two years ago last summer, the summer of
334 1905, I was down there. The drainage water was in the river then. We put our boat in right below the Rock Island railroad bridge. I do not think that there was any particular hazard to a man not skilled in handling a boat going down there. I did not think there was any particular danger until you struck close to the mouth of the river, where it is pretty swift, because it would suck and roll the boat. I remember we took five or six, three of them women, right down there. There were three men and three women and a little child in the boat. We pulled it over. We came back up the canal. It was too much work to come back up from the mouth. A man could not run a boat up from the mouth. I have seen men come up pretty strong currents. I couldn't

do it. (Age 78.) I have been on the Missouri for two years.

335 Q. I want to ask you from your knowledge of the Desplaines river, as it is to-day, and as it was when you were down there, the many times that you were, whether or not the river in its natural state and without improvements by locks and dams is capable of carrying commerce?

COUNSEL FOR COMPLAINANT. I object to any such questions as not cross-examination, the witness not having been offered as an expert on that subject, not qualified in that way, to enable him to express an expert opinion on a hypothetical case of the kind that is put, and that he is not qualified, and it is incompetent, irrelevant and immaterial.

Q. The current is such that no commerce could go up the river, in your opinion, is that so?

Objection.

A. I should not think so.

Q. When you were down there the depths of water were such it could not float any commerce?

A. Well, take it between Treat's Island and Patterson's Island, it ran all the way from three or four feet, but it is as deep as forty-two feet.

337 EDWARD D. BROCKWAY, a witness for complainant, testified as follows:

Direct Examination.

I live in Plainfield; will be fifty-nine years old August 9th. Was born and raised in Will County, about a mile from the river. I have been familiar with the river. I moved to Plainfield about twenty-two years ago. I used to hunt and fish and trap on the river and go on it a good deal from the time

338 I was eight years old. I would be there every day in the fall until freezing weather. We generally either had a boat at Rock Run or kept one above, just below the old Joliet mound. Sometimes went as far down as Treat's Island and up as far as Patterson's and Brandon's bridge. I have forded the river with a team just at the head of Treat's

339 Island quite often. We would go over there when gooseberries were ripe to get gooseberries. I have forded it when the water would come into the wagon box. Sometimes

it would be quite a bit lower and come up to the hubs. Sometimes I went there and couldn't get across, wouldn't risk it; it was too deep and I would walk back. Probably three times a year I would do that, as long as there were berries. That was from 1861 up until they cut off the bushes. My father came here twenty-five years before I was born.

Q. What did your father ever tell you about using the river himself before you were born?

Objection to anything his father told him.

A. My father told me about taking a flat boat down the
340 river from Peoria to Joliet. He said he got ten dollars for it and bought a cow with ten dollars. He told me this about two years before he died. He did not fix the da[illegible] of the trip. He just spoke of it as a flat boat he took down the river. I suppose it would be 20 or 30 feet long, some-
341 thing like that. I know Davidson's quarry. There was a road there for awhile that went down to the river. I have been there and seen where it came to the water's edge. It was quite deep there, made on purpose for loading stuff onto the boats from the road. There were ruts in the road. There was no road on the other side of the river opposite where this landing place was. There was a ford back up that main road where Brandon's bridge is. I have forded it there in July and August. It would come up pretty near to the box in the lowest season of water.

Cross-Examination by Mr. Munroe.

342 The last I saw of that road was over forty years ago. I first saw it three or four years before that. I was up there with a boat at that time, a kind of a flat boat, one that we made ourselves. It was not the kind that my father took to Peoria. It was a good deal lighter than that. I know a scow and a row boat differ. A scow or flat boat is a great deal heavier, built of heavy plank; on a scow the deck is built level, like that table. When I saw the road I think one of
343 my brothers was with me. He is dead. They had a road there to load the stuff onto freight it down to the quarry. That is what the road is for. They would freight it out to the quarry or Lake Joliet.

Q. And the road leads down to the water's edge at Lake Joliet and Miller's in from Lake Joliet, two or three miles

down, north of it, in that wide portion of the river, and they used a scow boat to convey quarry stone from Miller's?

A. No, they freighted material down to that quarry on the end of Mount Flathead, right where the Rock Run empties into the river.

344 It is probably six miles. A man by the name of Swalm run the quarry. Lake Joliet is 5½ or 6 miles long from Patterson's Island down to Treat's Island. It is a wide part of the Desplaines river.

It is not shallow. Oh, yes, there is some current. I have crossed the river at different points. I never saw a boat carrying merchandise or freight on the river, only this freighting of stuff down from the quarry. I heard from my folks about his sending the stuff down. I only heard of it the one year.

Q. Only one year, and to get his supplies in and open up his quarry, is that right?

A. Yes, that is it.

Q. And after he got his supplies in that was the end of taking any materials down?

A. Yes. He freighted derricks and such things down to save hauling them. That is all I knew.

345 ELIZA P. JONES, a witness for complainant, testified as follows:

Direct Examination.

My home is in Homer, Will County. I have lived in the county all my life. My birthplace was the house I live in. My father's name was William J. Paddock. Our home is about two and a half miles from the river, possibly four. Father came in 1836. I once went fishing on the river myself.

346 It was up near where Romeo is now; it was just before the war, 1859 or '60. The young men got a boat and went on the river. They did not wade. The water was too deep. It was between three and four feet deep.

Q. Have you heard your father and others tell the current reputation of the history of the early days on the Desplaines river in the matter of shipping or travelling upon it?

Objection to any statement as to what she has heard in that regard.

A. I have heard my father say many times that supplies were carried up from the south as far as Lockport or up to here. When father came there was no canal and there was no railroad. I remember particularly of his speaking often
347 that there was some man cornered coarse salt in Chicago, and that all the way they were able to get it was down the river, and it cost them $10 a barrel. I have heard him say that many times. That is the way I understood it. There was no other way to get it unless they went by wagons. That was long before the time when I went fishing. There was a Mr. Frederick Collins used to live there and the two old gentlemen used to sit and talk over old times and I have heard them talk these things over and over and over again.

Cross-Examination by Mr. Munroe.

Father came from New York State, walking and driving a one horse wagon to Chicago and across country to Homer.
348 He did not go down the river. He did not tell me that he brought salt down the Desplaines river. He said it came down the river. I don't know that it was a fact that the supplies were hauled to Joliet from Chicago by wagons or that grain was hauled from Joliet to Chicago
349 by wagon. I know some grain weas hauled that way. That was after the canal was opened though, after they commenced the canal.

I have heard my father say that when the state became bankrupt that they had to haul their grain to Chicago. That was after they gave up using the river, I suppose. Father told me that when the state became bankrupt the canal was not finished, so they hauled grain by wagon, not much of it, only once in awhile a load.

Q. That was the only way they could get it there, wasn't it?

A. I think not.

Q. What other way?

A. I think they shipped it.

Q. By boat?

A. By boat.

Q. Where did you get that information from?

A. I inferred it from what my father said. All the grain in our vicinity was never hauled to Chicago.

I am sixty-three years old.

Q. You say that supplies from the south came up as far as Lockport?

A. Well, as far as here. I wouldn't be positive whether they came as far as Lockport.

I only know about supplies coming up from the south
350 by river from what I heard my father say. He said it came up on a boat. I don't know what kind of a boat, but supplies came up, and some came by wagons which they called prairie schooners. He said some came by boat. He spoke of fruit being brought up from further south because there was no fruit here. I understood him to mean Joliet. He didn't mean Ottawa. That is too far off.

352 SAMUEL W. JONES, a witness for complainant, testified as follows:

Direct Examination.

I live at Homer, Will County. Have lived there since 1866. The Mrs. Jones who has just testified is my wife. I was a soldier in the Union Army; I went into the service from Massachusetts. We made our home with Mr. Paddock, her father. He died some twelve years ago. I have heard from Mr. Paddock and from old settlers the current reputa-
353 tion as to the history of the early use of the river.

Q. Just tell the substance of what it was you heard them say, as to the history of the early use of the river?

Objected to; hearsay.

A. I have heard Mr. Paddock and our neighbor, Mr. Collins, in talking over their early times, state that supplies were brought up the river by boat in an early day, that is, prior to the opening of the canal. I have heard them speak of having salt brought down from Chicago. They spoke of some fellow who got a corner on the salt and they had to pay an enormous price, $10 a barrel for the salt; it came down
354 the river, brought down by boat. I heard that from them before I went to live with Mr. Paddock. He taked about those things after my living with him. He settled in 1836, and it was immediately after that, I understand, and he began to tell those things about the river after I became acquainted with him, and after that time made occasional allusions to it up to the time of his death.

Cross-Examination by Mr. Munroe.

The other man, Mr. Frederick Collins, is dead. He came here in 1832 or 1833. I heard these old gentlemen talking these things over together. They never talked about
355 dams in the river at that time. I occasionally visited the upper part of the river, at Lockport and above. If I went to Chicago after I came here in 1866 it was by train. You must remember the railroads were here then. I would go to the river only for fishing or something of that kind. I don't think father went so very frequently, but he occasionally went. I don't think I heard them speak of themselves bringing things on the river. I don't think they confused the bringing of supplies by the canal, because they were talking about those early days prior to the opening of the canal. I don't think they were confused in that at all. I never
356 heard father say he hauled grain in a wagon. I never heard him say why. They had their teams and they could haul it cheap that way. I heard them tell about
357 hauling grain by wagon to Chicago. They never told me that all the produce was hauled that way.

358 DANIEL W. KING, a witness for complainant, testified as follows:

Direct Examination.

I am fifty-two years old and live at Plainfield, Will County; was born and raised there. Have always lived in Will County. I have lived within seven or eight miles of the Desplaines river. My home is below here. I have been on the river with men who came down from here in a boat. They would bring the boat down and we made hunting and fishing trips,
359 making Treat's Island headquarters and camping grounds. My first trip when I camped at Treat's Island was 1872, in the fall of the year. We usually would have two men go in the boat down the river and two would hunt on the shore. They would bring in the boat a tent, a camp stove, stuff to last three or four days. Some of them were great fishers. I used the gun. I remember the shallow point
360 at the head of Treat's Island. I never measured it, but we used what they called hip boots, tall rubber boots that come up to the hips. It would come within an inch and a half or two inches of going over the tops of them to ford there.

Of course we could ford it over all the time that I was there by facing up against the stream. If you turned sideways the current on those riffles there would take you off your feet. I made the trip only once that time, again the next fall and eight or ten years after that I used to make the trip quite frequently in the fall. I never made over one trip in the spring of the year. We usually used the same island as the camping place. I wore the hip boots and usually forded the river at this shallow point. It would never freeze up over the riffles. It would vary somewhat of course after
361 short rains but it would not vary very much, probably four or five inches. It would be from just above the knee clear up to the hip. I have seen it there when you couldn't ford it. That spring I couldn't ford it; it was too deep. I have been as far down as the aqueduct quite frequently. It was called "Dead Man's Hole" down there, around the curve. I don't know how deep; it was pretty deep I was told. I have gone down to within 20 or 25 rods of the mouth of the DuPage and then turned around and came back. I usually went on the bank with the gun. I got tipped over once or twice in the boat. I have heard from the early settlers the current reputation as it was when I was a young man as to the history of the early use of the river back in the period before there was a canal. I saw
362 flat boats there on the river and I asked them what they used them for and they told me they used them a little earlier to carry provisions on. One old gentleman told me there was a boat of grain brought there. That was before my time, when there was a brewery or something established there. I saw one or two of those flat boats in 1872 and I saw some of them later. They were not in use just then. They were anchored in the still water above Treat's Island.

Cross-Examination by Mr. Munroe.

They were anchored in the still wide water there; it was about 80 or 90 rods up above Treat's Island. The man
363 that lived up on the hill there, the old gentleman is dead. He told me they were used for carrying provisions. It was not specified from what point to what point. Those flat boats were, I should judge, 12 or 14 feet wide, 20 or 26 feet long, built up with a flap over the top here. I saw them two or three times after 1872. Al Robinson, Jean Robinson, John

Tyler and J. D. Schreffler were with me. There ain't any
364 of them living. Sometimes we would take a camp down there and leave it five or six weeks. We always employed somebody to run the boat down here from Doc Folk's farm. Once or twice we brought my boat from Plainfield by wagon, but some of the boys here (in Joliet) would most always have the boats we used to hunt with. I never took a boat
365 below Treat's Island, but the boys did, the ones that used to do the boating. I was tipped over in there once at the head of Treat's Island, what they call Deep Water. I don't know how it was. I don't think it was on account of the current. I guess the other fellow got floundering around a little bit and I lost my balance I guess and went out, that's all. No, the current was not swift there. On the riffles it is swift. Our fellows always got up and down with the boat. It wasn't too swift to take a boat up or down without getting out. I never done much with the boat myself. We had to face upstream in fording the river. The current was so swift it would sweep you off your feet. My friend was taken off his feet and went under, gun and all. I think a boat could go up, a boatman that understands running them; by shooting different directions he could get through. I ain't any boatman. I have seen it done on riffles, but not on
366 those. I never took much notice. These gentlemen on either side would come down and visit us and talk. These boats that I saw (in 1872) were the worse for wear. They might have been built, oh, five or ten or twelve years, it is hard to tell. They was water soaked, you know.

369 FRANK PADDOCK, a witness for complainant, testified as follows:

Direct Examination.

I live in Homer, Will County, and have all my life. My father was William J. Paddock. It was a little over four miles to the Desplaines river. My father was living there from the time of my birth and before. He came here, I think he said, in 1836. I have heard my father say they
370 brought supplies up the river.

Q. Just tell us what he stated?

Objected to; hearsay.

A. I asked him how they got supplies when they first came here. Well, he said they brought it in on boats. I don't know what kind of boats. He said that they brought some from the south and some from Chicago. He said they brought salt and groceries from Chicago. I have been on the river a short ways fishing in a small boat, three of us in the boat, from the Twin Locks, up north of the peniten-
371 tiary, as far as Romeo, generally in May or June. There was a pretty good depth in some places, 3½ to 4 feet. I couldn't hardly say what it would average all other; considerably more than it would average now. I have noticed the falling off, which I supposed was caused by the canal and the land being tiled out, that it drained it off so there ain't so many feeders feeding into the river. The river itself has been used to feed the canal.

Cross-Examination by Mr. Munroe.

I was born in 1851. I will be fifty-seven next month. The canal was opened before I was born.

Q. When your father told you about getting supplies in here from the south and from Chicago by boat in the early days, did he not refer to getting those supplies in on the Illinois & Michigan Canal from the south and from above?

A. Well, that is what I asked him, and he said there was no canal in. He got it on the river when he first came here in '36.

Father used to go to Chicago once in a while. How
372 he went before the opening of the I. & M. Canal I couldn't tell. I have heard of people going by teams. My father didn't mention the names of the people bringing in supplies. I never heard him mention any particular points from which the boats came, nor speak of a dam nor mention the
373 boats going over the dam, nor how they were propelled.

Father came from New York. He probably came by way of Chicago. He came from New York with a horse and wagon all the way through. I have heard him say that. I have been on the river probably half a dozen times. I was able to get my boat along without getting out and pulling it at any place all of those times. I didn't have to get out any time I was there. It was about four miles we rowed against the current up to Romea. The last time was more than thirty years ago. I was a boy fourteen or fifteen when we

used to go fishing. Haven't since. I couldn't swear to measuring the water; we didn't pay attention to that. I know there was water enough so we could go with the boat.

375 EUGENE DALY, a witness for complainant, testified as follow:

Direct Examination.

Age, 82; born in Ireland; came to Will County in 1850. Business, cabinet maker and furniture store and undertaker. Place, Exchange street, between Canal and the river. I could see both from the windows. I knew Mr. Norton of Lockport as any young man would know an old gentleman. Had no personal acquaintance. I remember his mill for flour and meal. It was not in the same place when I first came;
376 then it was here on the river. Afterwards it was on the canal basin. The river was lower than the canal and the water from the canal got into the river. There was a tail race from the mill that carried the water to the river. Anything thrown into the race was carried on into the river. In those days farmers used to bring the corn in in the ear and when it was shelled at the mill the cobs were thrown into the race and carried into the river and a lawsuit grew out of it. Daggett or Panton or both sued Norton for damages on
377 account of the cobs choking up the race. They were interested in the canal because their mill was lower down on the race.

It was common talk after this litigation between Norton and the other parties that they were fools to go to law with Norton because the state or United States had declared it a navigable stream. They got beat.

Cross-Examination by Mr. Munroe.

The common report around the streets at the time of the suit was that the river had been declared a navigable stream by the state or the government.

Q. By statute?

A. Yes, sir.

And that was the defense that Norton and Company
378 made to the suit, as I understood it.

The canal had been open for two years when I came here.

Q. And you never heard, did you, from anyone, at any time, that the river was actually used for the purpose of carrying commerce up and down?

A. No, sir, I never did; because at that time they were interested in the canal and they didn't care a continental about the river.

Q. I see. And you never heard from any creditable source that at any time the Desplaines river was actually used for commercial purposes for carrying commerce back and forth?

A. Well, no, but I think here that down below here, what we called Brandon's bridge, from there, that there was a town originally laid out there and that was known as the head of navigation, but how much navigation there was I don't know, but I know I have heard that frequently.

Q. I see. You have heard people say that?

A. Well, yes, sir. It was a common—so understood then; and I have read of articles by Mr. Woodruff and heard him speak of it.

Q. I see. Heard Mr. Woodruff and Mr. Stevens and others speak about that, have you?

A. They were speaking of the abandoned villages and like that. I have heard I think of four or five different ones that was in and around this neighborhood, that were abandoned, and it was in connection with that that this one down at what we call Brandon's bridge.

Q. Who ever told you that that was the head of navigation?

A. It came up in general conversations about those abandoned towns.

Q. Who with? Who was the party?

379 A. Oh, Lord, I couldn't tell how many. I know I have heardt Woodruff especially, because I see the articles—

Q. Do you recollect anyone else besides Mr. Woodruff?

A. No, I would not. I wouldn't know only from reading a communication that he had—

I have never been up on the river myself. I am no sailor. I have seen it from Brandon's bridge down, and seen boats on it. I couldn't tell how many I have seen.

380 CHARLES CLAY, a witness for complainant, testified as follows:

Direct Examination.

I live in Joliet, Will County. First came here in May, 1849. I lived at Lockport over haf a century. Have lived in Joliet this time now six or seven years. I was a carpenter, worked at boat building and repairing. The canal was through when I came here. I never saw any rafts coming down, but I heard of one coming down from away up near the Wisconsin line. I give you Dr. Daggett as my information. I never saw any. It was late in '59 or early in
381 '60 we were talking. I was at work fixing the mill that he owned, known as Daggett's mill. He told me he owned it all, had been to a good deal of expense, especially in the dam, and that he came pretty near losing it at one time. He said there was a man way up north that was coming down "and I heard several days previous to him getting there that he was coming down with a raft and I had gone to a great deal of expense in fixing up the dam and a good deal of trouble and labor." "Well," I says, "what would the raft amount to to you?" He says, "I would have to open my dam and let them through if they came down here." He said that this was a navigable stream, laid down on the United States map and the United States surveys. Well, that was something new to me. He told me when it was, but I couldn't tell the year now. It was something that happened further back; I judge it would be probably ten or twelve years or such a matter. He might have told me at that time how long it was previous, but I wouldn't remember.

Cross-Examination by Mr. Munroe.

The raft didn't come down. That is the funny part of it. He said fortune favored him that time. He said they got down with the raft somewhere in the neighborhood of Goose Lake and it struck something and went all to pieces there; he said he didn't have to open his dam for it.

No, he didn't tell me the raft got stuck on the ground and wouldn't float any further. The impression is that
382 it struck something, probably a tree or something like that and was broken to pieces, so that he didn't have to

pay for it. He said he would either have to open his dam or buy the raft or make some negotiations with the owners of it; on account of its beign a navigable stream he had no right.

He didn't tell me about the Legislature passing a statute in 1839, but he said it was a navigable stream, so laid down on the United States map. He made no reference to the state statute. I have lived in Lockport straight along with the exception of a few months at a time. I was born in 1824, December 21st. That makes me last December eighty-three years of age.

I haven't been on the river except fishing. I have heard people tell about going with teams. I haven't heard them tell about the river. I have known its being used for commercial purposes by hunters and trappers. They had boats
with a cabin on four or five feet high. I have seen boats
383 with cabins on the river up above Daggett's mill, between
there and Lockport. I remember distinctly seeing two at one time. I couldn't state positively as to others. They were 16 to 18 feet long. I was four or five blocks away. There was a cabin so that a man could get in for room and take his hides and things. The Daggett dam extended across the river with the exception of a little piece. There was a small opening there. The bank was not exactly connected. I walked over on a plank. I was not there to see it built. It
extended across the river when at low water, but the
384 river would extend while overflowed, over the whole flat.
The river and all would be about half a mile wide there.

Defendant moves to strike out the answers on cross-examination as to conversations with Daggett.

Re-direct Examination.

These boats with the cabins on were in use in the fur business. There was a common reputation that the river was used in the fur business. They came up in the spring of the year. I saw them two or three different times. I wasn't interested enough in the river to know as to the raft. I heard it from other sources besides Dr. Daggett. It was general
knowledge in the community.
385 In the early fifties I was riding into Homer with a
farmer named Matt Weaver who fell from his wagon and broke his arm. He says, "Now, Clay, you go back to Lock-

port and get a horse and go over to Dr. Anderson's," but I couldn't get anybody in Lockport to loan me a horse, even for that purpose, not for money; they wouldn't let a horse go across them flats.

I have known sturgeons to be taken out there between sixty and seventy pounds weight. I don't know the depth of the water there exactly; probably four or five feet.

I was born in Nottingham England, and came to this country in 1848.

386 JOSEPH COUNTRYMAN, a witness for complainant, testified as follows:

Direct Examination.

My name is Joseph Countryman. I will be 67 years old this month. I was born in New York. I came to Will County when I was two years old. I have always lived here, except theh time I spent in the army.

I was two years old when I came to Lockport on the canal. I lived in Plainfield most of the time. I have seen the Desplaines river and been on it in a boat down and back a good many times.

387 Q. Did you ever see any rafts being floated down on the river?

A. I saw Jim Flanders', or something, I don't know what he called it,—a boat of some kind he had. I didn't ever see any logs or timbers floated down the river, or at any point along the river. I have seen skiffs and boats on the river. Some were 16 to 18 feet long. Flanders had one that was 8 or 9 feet wide, I should think by the looks of it. I saw him going down. It drew perhaps 6 or 8 inches of water. It was propelled by oars. Flanders had sails up. We didn't have sails on ours. We had a boat that we built to fish with. They had their equipment in, camp equipment and everything.

388 They had their tent and everything in.

Q. Do you recollect any other merchandise that was carried?

(Mr. Munroe objected to the question on the ground that the witness did not testify that any merchandise was carried down the Desplaines river.)

The WITNESS. I don't remember any goods they had on the boat besides the tents and equipment; and they were trapping, hunting and fishing, just for pleasure.

Q. Did they unload anything at any point along the river, —any freight—?

A. We didn't go to their camp. We had been down below and were coming up. I met them down below here.

Q. And you didn't see any loading or unloading yourself?

A. No, sir.

I have been down the river on pleasure trips several times. We came up with our boat the last time I was down there, from the mouth of the river clear to the Joliet Dam, and took it out here and loaded it into a wagon and took it home. In that boat we had our camp equipage and everything; three of us in a boat and a team going on shore.

I noticed the depth of the water in the river on that trip. Some places it was deeper than others. I could not say exactly how deep it was. There was in some places shoals down there. We had to get out and shove it by hand; we could not pole it up by poles, it was too swift. In the deep portions below the lake we found some. In the lake it was all right deep. We could not touch bottom there in some 389 places. In some places there was not much water and some place you could skip right down a-kiting, but you could not get back up unless you pulled up by hand. We pulled it over the worst places and then got in again. We could not pole it up, it was too swift. We had to pull it up. The water was deep enough, but it was too swift, and there was some places there was rocks sticking up. We had a boat about 5 feet wide and 16 feet long, made of pine. We had it made in Plainfield. We kept it for a good many years. There could four men and quite a lot of stuff ride in it. We put the stuff in it that we wanted to eat. We had no barrels. We had the stuff that we thought we needed while we were gone.

We went down there whenever the fishing season was—sometimes in the fall and sometimes in the spring. I have been down seven or eight times altogether. The last time I was down there was over thirty years ago. I took one trip down there since the war; the others were all before the war. I have not been down there until since that last trip, went down to Kankakee feeder fishing, with a hook; but

I made a number of trips before that time up and down the river.

390 I think there was a ford in the river at Treat's Island. I did ford the river some places. At the ford it was not very deep, and some places up above your knees. There was rocks sticking up down there. If you found the channel you could go all right; if you didn't you get bumped.

There was a channel,—there was one ford at Treat's Island and three fords between here and the mouth of the river. I was familiar with each of them at that time. That was a good while ago. I forded each one and the water at some places was above your knees in depth.

Q. Did you ever see any boats on the river besides the one which you were in?

A. Why, I saw Jim Flanders with his craft down there. I saw lots more camping down there; who they were I don't know. There was a good many parties every little while. You would find camps all along the river. When we were there I would see camping parties, and boats.

Q. On which they had transported their camping utensils and equipment?

A. I suppose so. We had our boats with us.

391 We stopped several times going down. One place we found Peter Bryan in charge of the camp. We was cooking there. I remember that well. We stopped there quite a long while with him. They had a keg of beer there. We stopped and had some, and we stayed there a while, and went on down.

They had boats in their camping party tied to the shore. I could not tell you how large those boats were; I did not take much notice of them. They had tents there; I don't know how they got there. We had no sails on our boat. The only boat I saw was Jim Flanders' with sails on. I could not tell you what these boats carried. I didn't go into the boats. I saw them when they were moving along. Most of the time I saw them when they were anchored on shore. They were camping on the ground; never took much notice; I didn't ask them what they had. Jim Flanders' was the largest boat I saw on the river.

Cross-Examination by Mr. Monroe.

Q. Mr. Countryman, there never was any boats on the Desplaines river to your knowledge, except pleasure boats, was there?

A. I didn't see any boats unless the boats that went down for trapping, hunting and fishing; that is all I saw.

Q. For pleasure purposes?

A. Yes, sir.

The last time I came up the Desplaines river was 31 or 32 years ago, the woman tells me.

392 I didn't see the Haven's dam in the river at McDonough street. There was a dam near Joliet. We pulled out boat out there somewhere near Jefferson street. We could see Joliet all right. We took our team out of the barn and loaded our boat and took it home. The only dam I ever saw was down below Jefferson street bridge in Joliet.

It may be that we took the boat out at the McDonough street dam. The first dam we came to, we took it out. I didn't know that there was two dams there. We took it out there and put it on the wagon and hauled it home.

Mr. Flanders that I spoke of is Mr. James Flanders, a lawyer in Joliet. He was raised in Plainfield.

We took our boat to Joliet Lake usually, left our team there. We only came clear up once. Left the team in the livery barn last time. I mean we only came up the river once with the boat clear up to Joliet.

393 I never was in the canal. I have seined down at the mouth of the Desplaines river. The current was not very swift when we were there. I hadn't been there for quite a long while. We used to own a seine, lots of us fellows; I remember swift water at the ford there,—pretty swift,—you could not row a boat up, you had to pull it up by hand. We took ours out and carried it over there. The water was too deep, so we could not wade, so we took it over the worst and then went on up again. We just carried our boat over the rocks there and then shoved it off into the current and then went on. There were other places where we had to carry our boat on this side.

I remember the rapids in the vicinity of what is now called Smith's Bridge, Whitmore's ford, near the mouth of the DuPage river. I was there.

There was only one place there, where we got out coming up here, and I could not tell which one it was, it was

so long ago. We got out and pulled it up, till it got too deep, and then we took it out on the shore and took it up. There was water enough there,—it was too swift. It was swift ing up here, and I could not tell which one it was,—it was the day I was there.

394 This boat I brought from Plainfield, I used on the DuPage river, and boated in the Illinois river too.

Q. You don't pretend to have an accurate recollection of the ford at this day, do you?

A. Not exactly.

Q. There might have been six or seven fords instead of three.

A. There could not have been but three. I have been across all of them.

Q. You mean to say you crossed every ford there was.

A. I have been right at all of the fords, yes, sir.

The first ford, taking the mouth of the Desplaines river and working up this way, is the one at Treat's Island. That is the first one I met coming up and I think I have been to all the fords.

Q. Well, there was two before you get to Treat's Island, Mr. Countryman, as have been testified to by people who lived there.

A. I camped at Treat's Island three or four times.

I could not tell you how many times I have been at the mouth of the Desplaines river; four or five times. We used to go seining and spearing. I owned a share in the 200 foot seine. At Treat's Island we poled it up and then waded and pushed it part of the way, and then the water got above our knees and we carried it around. There were lots of rock there.

395 Jim Flanders' boat I saw there was not an ordinary row boat. I could not name all the boats that I ever saw on the Desplaines river, because I could not recollect; I have seen quite a number of them.

Q. At one time did you see 500 or 5 boats on a trip down the river?

A. 500 would cover the river all over; I never saw 500 in my life, gun boats or anything else.

I have been down there on the river, when the one we had was all we saw some times; some times I saw a half dozen; I never counted them. I would only stay four or five days and go back home. I saw a good many of them little row

boats, not fishing boats. We called ours a fishing boat; it was not a rowing boat; was made on purpose for fishing.

Re-direct Examination.

I could not tell you whether these camping parties along the river obtained their supplies from distant points and brought them on the river or not. We took our with us to last us a week or ten days. I have seen fishermen's boats from time to time on my trips; supposed to be fishermen's boats. They were tied up in the camps. I have seen some of them rowing and some of them not. The fishermen's boats were larger than an ordinary skiff. You could not spear out of a row boat; you would fall out, it would tip up with you. Our boat was flat. If a man wants a boat to spear out of, he wants one that won't rock; if he does, he will fall out if he misjudges.

396 SAMUEL GATONS a witness for complainant, testified as follows:

Direct Examination.

My name is Samuel Gatons. I will be 67 the 9th of next April. I was born in York State, Rensselaer County. I came to this state in the fall of 1844. I came to this county direct. I have lived in this county ever since, excepting the time I was out in California. I have lived on a farm most of the time within three miles west of here.

I am familiar with a portion of the Desplaines river. Of course, I never was up and down the length of it. I am familiar with this portion here in Joliet and a little below.

I guess I was not more than five or six years old when I saw the first raft come down before there were any dams built up here, and I think before a dam was built down here at Jefferson street. Well, I was most too small to know at that time where these rafts came from. The timber was cut above there. It might have been at the sag and it might have been up at Lockport or somewhere that way. What makes me remember it, my brother came into the house, and he says, "There is a lot of logs coming down, two men on them," so we all ran out to the bank to see them. I think the logs were to be delivered to Philo Haven's Saw Mill.

It is down here about half a mile from here or one mile.
397 I couldn't exactly say as to the size of the raft. It might have been two or three or four or five lengths, but then there were two sections when I come to think of it. The next day another section came down and stopped above Jackson street somewhere. As to how many logs there were on the raft, that depends on the size of the logs the way they make rafts. They make them about fourteen feet wide, I think. I couldn't tell you as to whether this raft was in the general proportions or not, because I don't know. It looked as though there were a great many logs in it.

As to the depth of the river along the portion with which I am familiar, at different times of the year, of course, it would be deeper, at dry times it would be more shallow, it would vary in the dry times. Well, there was considerable water all the time running there in them days, probably more than there is now on account of the timber being cut all over.

As to whether there was sufficient water to float these logs at all times I couldn't say. It is like any river you know that is piled up with stones. When the water goes down it gets shallow in places.

I saw on the river nothing but a yawl boat; that looked to me like those boats they have in Chicago on the lake, them little boats; it was a trapper, a nice big boat, everybody was looking at it. There was probably one hundred on the bank wanted to see it. It was probably about sixteen or seventeen feet long. I should judge, maybe six feet wide. I have not any idea how much water it drew. I know we lived
398 right up there by Jackson street at that time, and he stopped there over night, and he showed us the furs that he had been trapping. He had come along from Wisconsin, up through there that way. I saw the furs on the boat. He was showing them to my brothers, a lot of steel traps and provisions, a tent and a whole outfit. There were provisions on it and boxes. Everything was boxed up, and then I saw several smaller boats after that, trappers. We lived ten years right up there at Jackson street. These trappers transported equipment on these boats. The boats were propelled by oars. It had a sail, now I come to think. The sail was lying down, the poles were in the boat. He didn't claim to have any difficulty in navigating the river.

I did try to ford the river up there by Jackson street. There were places there the stones would be piled up in the

summer time, probably not as deep as the table, about two feet and a half, that is on those riffles of course. There were holes that would take you over your head, five or six feet deep, scooped out you know. There were places that were deeper and the stones were washed and that would make it shallow, after the ordinary depth of water at those
399 places. As I grew up in years that was all the way I could judge from that there would be probably from eighteen inches to two feet or two and a half feet where we would want to cross. When it was that I saw the raft coming down was in the spring of the year. I couldn't just tell you that. It might have been April, it might have been later. I couldn't remember the year. I was too small, you know, to remember those things then, but I should judge I was probably six years old, six or seven maybe, not over that. 1841 I was born. I was three and a half years old when we came here, in October. It was before the opening of the canal. There were no dams at all from Jackson street down to Malcolm's dam at this time that I saw these rafts coming down. They had what they called a corduroyed bridge down here at Jefferson street, and if I am not mistaken I saw them swing that one time to let a raft through. It was loose you know. Had to pull it back to its place. I am sure these rafts came down before the canal was opened.

Cross-Examination by Mr. Munroe.

I might have been ten years old when the dam at Jackson street was built by the people. I don't know what year. I remember of its being built. My father worked on it. I don't hardly think I could fix the date when it was built. My recollection now is, when we came here that lock up there was built and the lock at Jefferson street I think they
400 were building. Dam No. 2 at Jefferson street was not built. There was an old dam there. There was a lock dam and I think it washed out. I am not positive because I don't know for sure. Of course, I was too young to pay more than a passing attention to it. It run over and run that mill that stood between the two bridges there. I couldn't say that was so when I came here, because all I could see was an end of it. It had washed out, but that was what it was there for. I was not old then. I was from say five to eight years.

I didn't ever go up to Lockport in them days. I didn't know there was a dam clear across the river just below Lockport. When I came here the canal was not opened from Joliet north. I guess it was pretty well finished. No,
401 there was no water up where the tow path bridge is. I think I can remember the bridge was not built when we came here. The summer after, I went with my brother and went fishing there. The canal was not open for navigation when I saw the logs. I know that fact because there was no dam there. There couldn't be navigation at Jackson street.

I couldn't tell you who else saw those logs, them that lived around here. I don't know where that yawl boat
402 was from that came down the river. I was pretty small. They took me by the hand.

Q. You do not pretend to testify under oath here absolutely as to the existence of facts which you think you saw at that early day?

A. Well, such things as that I would not be afraid to stand on them because I know I was very small. I am not accurate as to dates at that time. I have my age all right. I came here in 1844. I was three and a half years old. I was born in 1841. The canal was opened in 1848 or '9. I know I was just about a little lad when I moved up there to Jackson street. As to what part of the transactions testified to happened before I was seven years old I couldn't tell you the dates because I don't know. I can only remember seeing it. I don't think they happened after I was seven years old, because there were no dams there when this raft came there, the boats came there, and three or four of the little boats came there, not like the pretty boat; one of those red boats painted, a regular trapper boat. I rode on the third boat that came from Lockport to Jefferson street. I know I was very nearly pushed off, the crowd was so heavy on the boat. As to seeing a sail on that boat before I was seven years old, come to think of it I heard my brothers talking about it, and they asked him what he wanted to do with that on there and he said there was wide waters below. I suppose he meant that when he got in the wide waters it would go faster.

I didn't see any fences across the Desplaines river in those days. I have seen wire fences now.

Q. Where there pole fences across the river anywhere?

A. There might have been further down or further up.

Q. Were there some opposite the penitentiary?

A. I couldn't remember what was up there in them
403 days. I used to go up as far as Jefferson street and up to Jackson street. I am distinct in my recollection that those rafts, on which the two men were, that I saw on the river before the canal was opened, came down the Desplaines river. I went out with my brothers. They took me by the hand, so I was pretty small. It was this side of Jackson street in the channel of the river. They were cutting timber to build that bridge too.

Q. How many feet south of Jackson street was it?

A. You can't get me into no feet because I don't know, It might have been ten rods south of Jackson street, that is where I saw the raft.

Re-direct Examination.

Those men were on it certainly, and they kept driving it around the channel. I can remember them running up and down it.

Re-cross Examination.

I don't think Dam No. 2 was in the river then.

Mr. MUNROE. I want to have the records show that when the witness signs the affidavit for a witness fee he was reluctant in doing so, and that he said he was too young to remember the circumstances exactly.

404 *Re-re-direct Examination.*

I am sure and distinct in my recollection in regard to the movements of this raft. It occurred before that dam was built up there, and before the canal was opened, and what I said about the depth of the river at the various fords is what I know from my own experience, when I was ten or eleven years old. After I was thirteen or fourteen years old I went out on the farm. After that, I don't know much about Joliet.

405 JOHN W. TAYLOR, a witness for complainant, testified as follows:

Direct Examination.

My name is John W. Taylor. I am in my 78th year. I was born in New York. I came to Illinois in 1837. I have lived near the Desplaines river, right along here ever since, —excepting along in 1858, I think I was in Wisconsin about a year. That was the only time I was absent, and during the war.

I am familiar with the Desplaines river, and have seen it in all seasons of the year and many years. I seen logs come down the river in some shape. Sometimes probably in small rafts, and sometimes scattered. I have seen them in the river. I don't have much particular recollection about them though, but I seen them in the river floating down.

I never saw any in the river before the canal was completed, or I mean after the canal was completed, principally before; along about,—might have been '45, '6 or '7. I am sure in my recollection that the rafts did come down before the canal was opened; '45 to '47, I would not state particularly just what years. I used to see them frequently in the river and logs coming down in some shape. Well, there
406 might have been probably a dozen logs pinned together there, or such a matter. I don't know where those logs came from; I don't know in particular where they went to.

I know they have a boom there at the dam, where the logs were held, that must have been rafted there. Used to see logs there in this boom very frequently in the river. They were there just above the dam, at the saw mill, and ready to be used there.

I did not ever see on the river anything more than row boats, skiffs and such like boats. I have been on the river considerably myself,—in boats, row boats; built one here; built one after the canal was built, but before that I was very frequently in boats.

I was familiar with the depth of the river. I don't remember that I ever saw the river at a lower stage than 2 feet, at its lowest stage. I was very frequently in the river wading it and swimming it; and along the banks of the river as far as Channahon. I forded the river a good many
407 times.

I did not ever see any boats carry anything on the river.

I seen boats come up the river here that were said to be travelers' boats, or probably fishermen's, but I never saw any freight carried on the river. I saw evidence, I think;—there was traffic somewhere. I know of the general talk or reputation in the neighborhood as to the navigability of the river. It was generally considered by everybody of the old inhabitants as being a navigable stream. They always regarded it as a navigable stream. This was long prior to the opening of the canal. That was about 1848, so that it was generally understood in the community that it was a navigable stream.

I was better acquainted with the river before the canal was opened than after. I am pretty sure in regard to the depth of the water, because I was in the river more or less pretty well down. Rafts and boats of various kinds had no difficulty in moving up and down the river. I don't think

I recollect any conversation about building a bridge over
408 the river. I know in an early day there were two in-

stances I knew of bridges being carried off by the water. The two bridges on Cass street were carried off by the water.

I don't know of my own knowledge of any traffic on the river, only, I said, what I thought was evidence of it. I lived in Channahon about a year or such a matter along in '43, and I used to see cordwood piled up on the banks of the river on that ford, that I know must have been landed there, I think from some boat, because there was no timber anywhere around there. This cordwood was not brought there by boats to my knowledge, but it must have been brought there, because there was no timber near the ford. I know the people of Channahon cut their wood at the lake. I know a man was drowned in the lake, in crossing the lake, in the spring of the year, while he was cutting wood there at the lake. I think on the left bank of the river the wood was cut there generally. There was good heavy timber there. This wood must have been carried away in boats, I think.

Mr. MUNROE. I object to the rambling of this witness.

The WITNESS. I never seen any boats or anything like that carry any merchandise, but have seen the floating of logs, rafts, etc. That occurred before the canal was opened, and I know that.

409 *Cross-Examination by Mr. Munroe.*

I came from New York. I came directly from Ohio here. I came up through Vandalia. I was in my 7th year when I got here, in 1837. I was up in Chicago, I think, two or three years before the canal was opened. I got there with the horse team. I met people on the road, going and coming. There was quite a traffic betwixt these places and Chicago at that time. There was not any other way of getting goods between these places and Chicago except by team, that I know of,—nor any that I ever heard of. I have been to Channahon on the road. I lived in Chicago between 1 and 2 years.

There was no wood near this ford in the vicinity of Smith's bridge. On the opposite side of the river from the Channahon side, I think there was timber.

410 Q. Do you not remember that there was also a bluff on the west side of the river, that is to-day heavily wooded?

A. It must have grown up since then. Well, there was a little timber, I think along the DuPage river at that time from Channahon down. I never heard of a boat being on the Desplaines river, carrying freight or merchandise.

I never lived in Lockport. Well, I lived in Joliet, in a house that stood pretty near where the Rock Island station is now. I didn't know that since 1839 the State Legislature passed an act declaring that portion of the Desplaines river navigable which extends from the upper basin of the Illinois and Michigan Canal to the Wisconsin State line. I never heard of that.

Q. When the people treated or discussed the river as a navigable river, do you know whether or not they had in mind that act of the Legislature which declared that river navigable? You don't know whether they did or not?

A. But it was generally considered by the people here at that early date,—not only they considered it, themselves, but the Government considered it a navigable river.

Q. All you know about that is what you heard the Government claim?

A. Yes. It was discussed here and talked about by the people.

These rafts that I saw were along from where I lived, generally. I lived for a time on Bluff street, and had a good view of the river, and I think it was not a great ways from

Cass street that I saw these rafts or logs, north of Jackson street.

Well, I know I saw these logs before the opening of
411 the canal, because I was not as familiar with the river after the opening as I was before. I didn't move away from the river, but I didn't have occasion; I was not sometimes steady in town. I worked in the country sometimes after the canal opened. I didn't have any occasion to haul any produce or supplies from Joliet south, or from points south of Joliet north. I did not know that goods coming from St. Louis came as far as Ottawa and then were hauled by teams from Ottawa to Joliet. I never heard of it. I never heard of anything coming from the south, excepting apples, peaches and things like that. They were fetched here in wagons, not from Ottawa, but from the farms down south,—down from the central part of the state, the southern part of the state.

Q. Do you remember that the stones for the locks at Marseilles were hauled from Swain's quarry in Joliet to Marseilles?

A. No, I don't recollect that particular. I recollect Swain's quarry at the time it was opened. I recollect Swain's doing business here.

All the business I knew of was between Joliet and Chicago, and the teams were coming and going every day all the year around.

412 WILLIAM R. TIBBALS, a witness for complainant, testifies as follows:

Direct Examination.

My name is William R. Tibbals. I live in Dubuque, Iowa. I have lived there since March, 1857. I will be seventy-six years old the 27th day of next month.

Since then the greater portion of the time I have been a captain and pilot on the Mississippi river between St. Louis and St. Paul. I first commenced navigating the upper Mississippi river in 1854. Have had government license as a pilot ever since I went there. First received Government license in March or April, 1855.

My duties as pilot were to navigate the boat I was on and

determine its course, and the crew were subject to my
413 orders as far as navigating the boat was concerned, and in handling of the load they were subject to the captain and to me when I was captain.

From the time I received this Government license I navigated the Mississippi river and the St. Croix river as a pilot. I became the United States Supervising Inspector of Steam Vessels of the Fifth Inspection District in February, 1895, and served four years. I was appointed by President Cleveland. The Fifth Inspection District embraces from Keokuk, Iowa, to St. Paul, Minn., and the part of Lake Superior that borders on Wisconsin, and the tributaries of the Mississippi between the points named. That included the Iowa and the Des Moines rivers. There was no steamboats on those rivers at that time. Also the Wisconsin, the Chippewa and the St. Croix rivers were in my district, and
414 navigation was being prosecuted upon them at that time.

It was necessary for me to examine the vessels actually operating and which were applicants to operate on those streams during the period when the local inspectors were not there, but I was in charge of the district and had two sets of local inspectors in my charge when located in Dubuque and Duluth.

The water and channel conditions on the Mississippi river when I went on the river in 1854 was such that we had no serious trouble at all. In 1855 the water got very low and we had a good deal of trouble with the new boats that were built and came out that spring. In 1855 the depth of the low water that I referred to was between Lake St. Croix and St. Paul about 26 or 27 inches, that is about 30 miles of water. We had some boats that navigated the Mississippi that would draw from 12 inches to 3½ feet. I was referring not to one boat,—12 inches being the empty and the 3½ foot, the low,—but was referring to two vessels, which were light and without any load. A vessel which drew 12 inches of
415 water when unloaded, when loaded to its capacity would carry about 80 tons of freight. It would be from 120 to 130 feet long and about 30 feet beam, and would draw when it was loaded about 3 or 3½ feet of water, or somewhere between that. The larger vessel, which drew 3½ feet of water when loaded to its capacity would draw about 6½ feet and its load would be between 800 and 900 tons. That boat would be about 235 feet long and she would be 37 feet beam.

Before I went on the river I lived in Galena, Illinois. I went to Galena in 1852 and I knew that they were running a boat from Galena up the Wisconsin river and saw her every time she went in there, and after I went on the river I was conversant with her. That boat was called the "Enterprise." She would draw when she was light, I should not think, over 10 inches, perhaps less than 10 inches, and when loaded she would draw from 28 to 30 inches. She would
416 carry 75 tons of freight. In her ordinary operation I should think she would carry between 60 and 80 tons. When she was light, without any load, just her fuel, she would draw about 10 inches, somewhere, about 8, 9 or 10 inches; and when fully loaded she would draw 30 inches, perhaps
417 more. She was a boat that had about 4½ hull, 4½ side. She was what you call on the Mississippi river a "Gunnel-Boat," and she had straight sides, about 4 feet, and they could load her clear to safety so they could make her draw nearly 4 feet of water. The depth to which she would descend into the water would simply depend upon the relative amount of the load; and it would fluctuate between a draught of 30 inches and a draught of 8 inches.

418 There were several boats that ran up the Iowa, from a little place in Iowa called New Boston. The Iowa river comes out at New Boston, and they went up the Iowa river to get their freight and deliver it at New Boston, to be taken by the through boats to St. Louis.

Two or three different sized boats ran there. Their draught would run from 12 inches to 18 or 20. They were tow boats, towing barges themselves. They did not put much freight on them as a rule; that is, they kept them as light as they could, so that in case their barges got into trouble they would have room to work.

In operating one of these boats, they put a barge on each side of her and made them fast, pretty well forwarded. It really pushes them. They would have to hitch the two boats into them far enough to make them solid.

Their loads consist of sack corn, and I have known of them bringing out 3,000 sacks on a trip,—about 1,000 sacks on each barge, and about 1,000 on the boat. The draught of a boat carrying such a load would be about 3 feet, and the barges would draw but 2 feet.

Q. You may state, Mr. Tibbals, if you know it to be a fact, if it is a fact, whether or not it is a fact that commercial navigation is carried on streams of water in different

parts of the United States, drawing less than two feet of water?

A. Yes, sir. I have steamboated on the Mississippi river on fourteen inches.

The Moline chain of rapids is on the upper rapids, extending from Rock Island to LeClaire, a distance of about 16 miles. It is right opposite the Town of Moline, and a steamboat man would speak of it as being the swiftest
419 water on the river. The rate of the current there was from 6 to 9 miles per hour. I have navigated through there before there was any improvement made there. I never knew of a steamboat that tried to go through there and did not get through. At the same time I have known them to have to lay at anchors and work themselves through. They would cordell some of them. I was on one boat they had to cordell. The method of cordelling was to put out a 600-pound anchor, which would catch in the bottom of the stream, and then wind the line up on a capstan and pull
420 the boat up. When they got the boat up to the anchor, they would repeat the operation. I have done that on the lower rapid at Keokuk, and it was also used on the rapids in the Mississippi, called the Smith chain, which is swift water too, but not as bad as Moline.

Q. Now, I will ask you, Mr. Tibbals, to take the case of a river which, for a period of four or five months each year, exclusive of the time she was frozen over, and exclusive of the time of extreme low water, presented a depth of water which would range from 18 inches to 10 feet of water, in a channel which would range from 250 wide, to a quarter of a mile wide, and which had a current which varied from an almost imperceptible current in some of the wide spots where it was a quarter of a mile wide and ten feet deep, to a current much of the way at two and a half miles an hour, and which would ascend to three and a half miles an hour, and in one or two places to five miles an hour, and in one or two places to seven and seven and a half miles an hour, the swiftest current in one instance being in a shallow part, and in another instance being where the water was somewhat deeper, but not up to the large depth, I will ask you to state whether or not, in your judgment as a navigator, that stream would be a navigable stream?

Counsel for Defendant. That is objected, to, if the court please, as incompetent, irrelevant and immaterial, and it does not state, if it is intended to include the Desplaines, it does

not state the physical facts and conditions there with enough accuracy.

The COURT. What fact is left out?

COUNSEL FOR DEFENDANT. One important fact is the slope to the river and another is the bend in this stream.

421 The COURT. He may answer the points—he may answer first whether the questions of slope and bends in the stream would or would not affect any answer he might give.

A. Well, I don't know that I exactly understand the situation, and if I understand the question.

COUNSEL FOR COMPLAINANT. I submit in regard to the slope, if your Honor please, that the slope in so far as important, is important in producing the velocity or current in the water, and, having given the velocity or current of the water, I have covered that feature, and if the bends in the stream are important, I have here, if your Honor please, a map which has already been introduced in evidence, and one which is a certified copy of the Government record, and this is the one that has no annotations of any kind upon it, but just as it comes from the Government, and it is drawn on the standard Government scale of two inches to the mile, and I am perfectly willing to incorporate into the question that the stream is a stream such as is shown you on the map before you, which may be called McCullough Exhibit 1, and which is drawn on the scale of two inches to the mile; and the particular part of the stream we are interested in is from Joliet to the mouth of the river and the bends are such as are shown on this McCullough's Exhibit, which is drawn upon the scale of two inches to the mile.

COUNSEL FOR DEFENDANT. Does your question still stand?

COUNSEL FOR COMPLAINANT. It does. I have embodied this other.

COUNSEL FOR DEFENDANT. There are other objections.

The COURT. Yet us have them all at one time, Mr. Porter.

COUNSEL FOR DEFENDANT. Of course I could write out a hypothetiscal question that I think would be proper.

The COURT. You can put that on cross-examination.

COUNSEL FOR DEFENDANT. This witness cannot tell any supposed examples, unless he knows the declivity of the river.

The COURT. That has been given.

COUNSEL FOR DEFENDANT. And between the points where navigability is supposed to exist. It might be the frequency

of rapids or ripples or shallow places. This supposed
422 stream may have a light current in one place and a greater current in another place.

The COURT. You may state, after having heard the objection of counsel, whether you are competent on the hypothetical question as put to you by Mr. Starr, and without further information bearing on the point, suggested in the objection, to answer the question whether such a river as stated is or is not navigable?

A. As Mr. Starr asks the question, I would say, yes.

The COURT. That is you would say that any river which answers the description given by Mr. Starr, irrespective of anything esle—

A. Yes, sir.

Q. No matter what else you might add to it, it would always remain and be a navigable river?

A. Yes, sir.

Cross-Examination.

I have knowledge as to the rapidity of the current of the Moline Rapids, not as an engineer, but I was connected with the United States Engineer's office at Rock Island for seven years. I was navigating over the rapids and I was with them and heard the conversations in the office and heard the engineer that used to work on the rapids. The Moline Rapids are not the same rapids as those referred to as the Des Moines Rapids. The Des Moines Rapids are at Keokuk, the foot of them; the head of them is at Navoo, Illinois. The Moline Rapids commence at Rock Island and Davenport and extend to LeClaire, about 16 or 17 miles. The Rock Island Rapids are the same as the Moline Rapids. The slope of the water I do
not know well enough to make a positive statement. I
423 know they are pretty swift, that is all. I have doubled the trip a good many times over the rapids; that is, towed part of the load and then went back and got the other part. I have navigated these rapids before they were improved. The improvement was made in 1877. Before the improvement was made it is not true that a good portion of the time it was dangerous, if not impossible, to navigate these rapids. It never has been in my time. I always got over the rapids. Of course, there is more water now.

424 WILLIAM H. BING, a witness for complainant, testified as follows:

Direct Examination.

My name is William H. Bing. I live in Cincinnati, Ohio. I am a steamboat captain and pilot. I have been engaged in steamboat work and business since 1873. I was licensed by the Government as a pilot on the Ohio and its tributaries and have continuously followed the business of navigating the Ohio river and its tributaries from the year 1873 up to last December. The tributary streams of the Ohio which I have navigated are the Great Kanawha river and Big Sandy river, some on the Kentucky river, and have navigated the Ohio all this time, almost altogether. Not very much on the other rivers.

The run which I have made on the Ohio river most frequently was from Pomeroy, Ohio, to Louisville, Kentucky.

Referring to the Ohio river and the depth of that river
425 at high water,—I seen it seventy-one feet, at Cincinnati; and I have seen the river as low as twelve inches; twelve to fourteen inches, near Pomeroy, Ohio,—between Pomeroy and Ironton. There are several shoal places there that go down to about twelve inches; I don't just recollect what year it was now; it was years ago. It is a frequent thing for the Ohio river to have those very high floods and those very low water periods,—every year. Most every summer we have about as low as three feet, and sometimes under the three-foot stage. When I said twelve inches, I meant twelve inches only in chutes,—what we call chutes,—in the deepest part of the shoal place. A boat going down through that river runs over
the one foot of water. They cannot use the big boats,
426 and when we cannot use the larger boats we generally use the steamboats used in the small streams. They navigate and carry freight on those small stages of water. It is not, maybe not more than once in eight or ten years, when it gets that low; but I have steamboated on little boats when the water was only twelve inches in the river. We carry light freight and passengers. You couldn't carry over eight or ten tons on that low water you know. The little boats would probably draw five or six inches; they were not built very wide, you know.

The dimensions of these boats that would navigate on the

twelve inches of water and carry freight were about 100 feet long, 90 to 100 feet long, and about 16 to 18 feet wide, with a little flat bottom, square bow,—or the kind of boats on the Ohio river.

They have put in dikes and dams, which helped the channel considerably from what it was. I ran over it there before the improvements were made. The 12-inch water was before the improvements had been made.

427 On the Kanawha river the dimensions of the boats which we used were something like the boats that were in the Big Sandy river,—the ones I have already described; something of that class. I have navigated that kind of boats on the Kanawha river,—about ninety to 100 tons being their capacity. I have seen it as low as ten to twelve inches on the Kanawha; I have been on small boats there and could navigate on that twelve inches and carry light freight. We generally have low water, through each year, but probably not that low. When it got down to two feet we would call it low water. Before they had improvements there, it did go as low as that annually. It got as low as six inches at

428 Charleston, West Virginia, on the gauge, but the gauge is always considered a little less than the water is. About ten inches in the river. It would run ten inches to three

429 feet at low water. From 18 inches and 2 feet—along there—I have run there when it was that low. I made on the Kanawha in the years that I was running on it about a couple of trips a week, for three months each year. The

430 most of my work from—over the Kanawha was on towboats and took up empty barges; just shoved the barges up to the mines. They did not draw over ten inches, six or eight inches. We loaded the barges to six feet or six to

431 seven feet. Loaded them with coal, ten or twelve thousand bushels of coal on the barge,—and we would bring out six or eight or ten of them, one steamboat.

I have run on passenger boats up there that were about 150-ton boats, about the largest sized boats that run in the Kanawha river,—when I was working there, in all kinds of stages, from 15 feet to 20 feet, during that time. The boat that I was on would carry, I suppose, very near 200 tons, all of 100 tons, on three feet of water. I have seen and used boats on the Kanawha river whose capacity would be less than 100 tons; and size about 90 to 100 feet long and 16 to 18

feet wide,—about that sometimes. On three feet of water they would carry from thirty to forty tons.

432 Boats of that size and tonnage were of frequent occurrence upon the Kanawha river engaged in commerce. When I steamboated there they had a great many what they call chutes there, strong currents, walls built up, and the channel close to the walls, and the current I suppose would be an eight or ten mile current. I navigated through that current, and the capacity of the boat would be about ninety tons, and the boat was about half loaded.

433 As to how the current of eight to ten miles an hour affected the operation of navigating boats with freight, going down the current takes the boat along; all we have got to do is keep it in the channel; going upstream it is pretty slow. Sometimes we have to lay in line and warp through those strong places when the river is down low. We take and lay an anchor above over the shoals and put a line to it, and have a nigger running by steam; make a capstan and wind them. We call a capstan, in local parlance, a "nigger." The boat was loaded with this half load of freight when hauled up in this manner.

Q. I will ask you to state, Captain Bing, to take the case of a river, which for a period of from four to five months each year, exclusive of the time when it was frozen over, and exclusive of the time of extreme low water, presented a

434 depth which would range from fifteen to twenty inches of water in the shallows, and up to ten feet and more in other parts; and in a channel which would range from 250 feet wide up to a quarter of a mile wide, and which had a current which varied from an almost imperceptible current in some of the wide spots, where it was a quarter of a mile wide, and ten feet deep, to a current much of the way up to two and a half miles an hour, and which would increase to three and a half miles an hour, and in one or two places to five miles, and in one or two places to seven and seven and a half miles an hour; the swiftest current in one place being in the shallow part and in another place where it was somewhat deeper, but not up to the large depth,—I will ask you to state whether or not in your judgment and opinion, as a navigator, that stream would be a navigable stream, assuming that it had such windings and bends as are indicated in the river which is shown upon the McCullough plat which is before you here?

I will add to that, that you may include in the conditions, that there is a stretch of nearly a mile where it passes an island where the width is less than 250 feet, and in one part goes down to nearly sixty feet; that the area of the imperceptible current, or very low current, is in a strip of the
435 river between five and six miles, and where the river runs very nearly straight without bends, and is about a quarter of a mile wide, and that there is another place in the river where the current is very sluggish for about a mile, where it goes around a rather large bend and where the river is from three to six hundred feet wide as it goes around the bend; that the swift current of seven and a half miles is confined to an area not exceeding a mile or a little more, less than two miles in length.

439 A. I would say that it would be a navigable stream.

COUNSEL FOR COMPLAINANT. What depth would you say, as a navigator, would be sufficient for the carrying on of navigation upon stream of these conditions?

The COURT. You mean for commercial purposes?

COUNSEL FOR COMPLAINANT. Yes, sir.

A. As low as three feet, I should think.

Q. You may state whether or not, upon a stream of these general conditions, the presence in the stream of different places at stretches of from a quarter of a mile to a mile where the water would be in low water as low as fifteen inches deep, for the period of a month or six weeks in each year, would deprive the stream of its character as a navigable stream.

Objected to as asking for a legal conclusion, navigable stream, rather than whether in fact it could be navigated for commercial purposes.

COUNSEL FOR COMPLAINANT. I will adopt what you say: That a stream having those conditions would be in fact navigated for commercial purposes.

A. Yes, sir, it could.

Cross-Examination.

440 I am sixty years old. I first began to navigate the Ohio river in about 1870, when about twenty-two years old. That is when I went on to learn the river. It took me three years to learn it. I got my license in 1873. After I obtained my license I was a pilot on a boat for a while until I knew how to man a boat. When I first took command of a

boat, I guess it was about five years after I was piloting. I think it was about that; before I took out a captain's license, about 1879 or 1880, along there, about that I guess; I don't recollect the year. I obtained command of my first boat about 1879 or 1880, on the Ohio river, between Syracuse, Ohio, and Louisville, Kentucky. I was first on one boat and then on another. I was not on one regular boat all the time. I had charge of a boat as long as four years at a time.

441 The first boat was a tow boat, towing coal and salt,—towing barges filled with coal,—what we would call a towboat. I would not call it a tug. She had about fifteen or eighteen-inch cylinder, fifteen-inch cylinder, and five and a half stroke, five and a half foot stroke; all towboats are stern-wheels. In the water when light she drew about thirty inches. I operated her about two and a half years, that is in one time, running time. I have been on, I expect, fifty different boats or more.

It has been thirty-five years since I got my license, about, and I have been working on the river most of the time until last December, I have not been on the river since December. All the boats that I have been captain of were towboats. I have piloted on passenger boats, but I have never had charge of one. As to acting as pilot on passenger boats, the longest at one time was about a year. Those boats operated between Charleston, Virginia, and Cincinnati, Ohio, on the Kanawha river, and the Ohio river together,—the Steamer Boone.

442 I was thirty-five years on the Ohio, and I guess about three years on the Kanawha river; that is, I was in the Ohio and Kanawha together on boats that run up the Kanawha river. My license went to the head of navigation on the Kanawha, Canalton, about eighty miles from the mouth of the Kanawha. The character of the boats I had charge of running in the Kanawha river was mostly towboats. Brought up empty boats and brought out coal from the mines. The barges carried from ten to twelve thousand bushels, they would draw about six feet or six and a half, along about that. We always put our fuel on the steamboats, what we would use on the trip, and put them down to about three and a half or four feet, generally. It would depend on the class of boat it was. If it was a small boat it would not carry very much coal and it was not built as deep in the hold as the large ones.

The Ohio river I navigated as far up as Syracuse, Ohio, about twenty-five miles above the mouth of the Kanawha river. It is near Pomeroy, Ohio, about seven miles above
443 Pomeroy, or six miles. Below Pomeroy there were some shoals there, at Eight-mile Island, it is called. The extent of those shoals in the river, in length, were about a quarter of a mile, I suppose; the worse part of it, not over a quarter of a mile, I think.

I have taken towboats up with empty barges up over those shoals in low water. The barges, of course, were light and would not draw over six or eight inches; steamboats would draw thirty inches or more. The towboats drew some thirty inches; of course, smaller boats were lighter draught. I
444 have taken all kind up over those shoals on low water; taken barges partly loaded. They could go over the shoals without stopping. The water at that time was three or four feet deep, along there. I have taken small boats up. We carried passengers and freight on, when there was ten to twelve inches in the river, over those shoals; as low as ten inches I have taken on one particular boat. It very seldom got down to twelve inches, very seldom. The usual depth during the dry season was about twenty-six inches, or twenty-eight, along there. I can remember one season when it got as low as 15 inches. It was along in the '70s; I don't recollect the year at all. I have never seen it that low since. Sup-
445 pose it were only twelve to fifteen inches deep all the way from Pomeroy to Louisville, small boats could run there at that stage, and it would be possible, in my judgment, to carry on profitable commercial navigation; I know it has been profitable, anyway.

Being asked: "Did you ever know a time when the river was twelve to fifteen inches deep all the way from Pomeroy to Louisville, Kentucky," Captain Bing replied: "Not all the way; no, sir."

Captain Bing further testified that there is a place above Cincinnati,—there was before they improved the river there, that it got as low as the shoals at Pomeroy, a place called Nine-mile, and Eight-mile, and Four-mile; they are all strung along there together. I did navigate over those places before the river improvements. It was a sand bottom and we had a good deal of trouble there. As to the average depth of the water there during the dry season, I have seen it down

to twenty inches, and two feet; and along there, there is
a stretch that is all shoal, bad places, of about five or six
miles, from Four-mile to Eight or Nine-mile.

Being asked if a man had a small boat that only drew six
hes of water, he could run it over those shoals, he replied:
They did do it. There were lots of them around. Small
ats that drew eight or ten inches."

The distance between Pomeroy and Cincinnati was two hun-
ed and fifty miles, I believe it is estimated. I went up
river with tows that didn't make over a mile and a half
hour and I went up with some side tows, with a different
ge of water that would make four and a half or five miles
hour. It would depend altogether upon the tow you had
d the stage of the water. When our tow and barge were
ht, we would make five miles an hour; when the barge was
ded, the tow was loaded, we would not make more than
m one to two miles an hour. We very seldom tow our
ded barges up the stream. If we do it is not very much.
I say we make as high as four and a half or five miles
an hour with a medium sized tow of empty barges going
up the river.

As to the kind of passenger boats operated by me for a
ne on the Ohio river,—they carried passengers and freight;
rn wheelers, flat bottomed boats, somewhat similar to the
ats used on the Mississippi river. They drew, well, from
out three to four feet generally. Four and a half some of
em; it depends upon the size of the boat. Those passen-
r boats operated from Cincinnati to Charleston, West Vir-
nia,—the boat I was on. Charleston is on the Kanawha
river, about the mouth of the Kanawha river,—sixty
8 miles they call it. The size of those passenger boats was
about 300 tons, what she carried. I would not be posi-
ve. Something like that. She drew very nearly thirty inches
ht.

I have been on a good many others, just for a short time.
here would be trips down there when I was only on a boat
r three or four or five days, and then I would be on an-
her one; what you would call tripping. I have been on
great many at low water season, but not steady, just for
ips. They will make twelve or fourteen miles an hour
wn the stream with the current. It depends upon the stage
the river a good deal, too, that does. Sometimes they will
ake fifteen miles, if it is a big river maybe more. Going

up the river they will make six or seven, or eight miles an hour, some ten.

The steamer Boone I was on; she just averaged about eight miles an hour, we always considered she would make about eight miles an hour going up stream, from Cincinnati to
449 Charleston. That counted out the landings, too. We had to land our wharf boats and do business. Going up in the Kanawha, I never timed her. I suppose six or seven miles an hour; I would not be positive about that.

I have not navigated very much on the Kanawha river since the improvements, about twelve years ago. Locks and dams were put in,—one near the mouth, about a mile from the mouth, and then there were about eight or nine or ten miles apart, something like that. All the way up to just below Canalton, I think there was eight locks, eight or ten, I would not be positive which. There were no canals put in since those improvements were commenced. I have been up the river since, but not to run there regularly. I have been as far as Charleston since, on boats, several times. Since Congress first began the improvement of the Kanawha river, I do not recollect how long it has been.

There were locks and dams in the river when I operated there, at the head of the river, what is called Paint Creek Lock. That is below Canalton and above Charleston
450 about ten miles, I think. The sluices spoken of in direct examination are a rock wall built up, right along where the deepest part of the water runs, the channel they call it. I don't think the Government put it in. I think some company that improved the Kanawha river in the start, did it. The Government afterwards put the locks and dams in there. That was there long before I ever was. That sluice I speak of is the one called Red House, about forty miles up from the mouth Kanawha, and about twenty miles below Charleston; I suppose about 150 feet wide, possibly, or 200. I took my towboats with barges up through there.

Captain Bing being asked: "I suppose when a person is going up through a current of that kind, the current always seems a little more swift than it really is, doesn't it, Captain?" replied, "Well, I don't know about that," and continued testifying as follows:

As to the difficulty in taking boats up through that sluice,—sometimes they would have to what you call double trip, take part of the barges at a time, possibly have so many she

would shove on through, take three or four and come back and get the rest and go through this place. We have done that often. Sometimes have to lay a line on the wall and
451 run them up through a little nigger. That is something like the process known as cordelling; hitch a chain up ahead and pull the boat up. I had to do that at that sluice, only in that low water.

That sluice was two or three hundred yards long, I suppose, something like that. I don't know exactly the length of it, but I suppose it would be two or three hundred yards, something like that.

Being asked: "Did you ever measure the velocity of the current at that point?" replied in the negative, and to similar questions as to the Ohio, Kanawha and other rivers.

Captain Bing further testified:

I would think it would be eight or ten miles an hour, the current, but I don't know,—that would be my idea of it, gained from the fact that it is quite difficult to get up there with boats.

452 I did make five miles an hour up the Kanawha river with only one barge in tow. With the barge light, as to calculating or measuring the speed, we know the distance on the river, all of it, all pilots ought to know the distance and we always count when we are on watch. We know what the distance is from one point to another. That is the way that our speed, that is the way we get our speed of the boat, what time she is making. Say, I come on at twelve o'clock today, I can tell at supper time how far I have come. I know just how many miles I have made in an hour.

As to the Kanawha river, I never calculated that at all. I know they could do it; I am satisfied, make five miles an hour up the Kanawha river with one barge, from the
453 mouth to Charleston. I am not guessing at it at all. I never took and measured it, of course. We know the distance and know how many hours we are going while on, and we will average that about so many miles, we consider it.

With a tow, I have averaged four miles an hour, and I have average seven miles an hour, and five miles an hour; it depends upon the size of the steamboat and the amount of barges we have in tow. You may take a boat, a large steamboat and put on twenty barges to her, she would not make over four miles an hour, while a small boat with three barges would make four miles an hour, or five miles an hour.

I said, with one barge, a towboat will make from five to six miles an hour, but take eight or ten or fifteen barges, she won't begin to make anything like that. Maybe three miles, or three and a half, something like that; depends upon the stage of the water. One of those tow boats going without any barges will make eight or ten miles an hour up-
454 stream; some make more than that; some will make twelve. Lots of them that I have been on made that time; yes, sir. H. F. Frisbie was one towboat. She would make twelve or fourteen miles an hour up stream without any tow.

Well, an ordinary tow, I have made five miles an hour with her, with empty barges up stream. The Frisbie was owned at Cincinnati. She ran to St. Louis part of the time and ran to Pomeroy. Hedwig owned her. She went out of commission three or four years ago, maybe longer, I do not know just exactly the time. Mr. Hedwig lives in Kentucky near Cincinnati, near Dayton, Kentucky.

455 I don't know anything about the engineering at all. I have heard the expression used, slopes of a river, but I don't know anything about it. As to the fall of a stream, I don't know anything about it, it is out of my line.

As to whether a river could be navigated for the purposes of commerce that had a fall of 90 feet in a distance of 18 miles, I should not hardly think so.

If you assume that a portion of that river 18 miles in length is on a level, say there is a six-mile stretch of practically level water, or a very gentle slope, and that the remainder of this fall of 90 feet is in the balance of the river, that that stream could be used profitably for commercial purposes in navigation, there would have to be improvements made on it.

456 VALENTINE L. SCHLINK, a witness for complainant, testified as follows:

Direct Examination.

My name is Valentine L. Schlink. I will be 78 years old in August of this year. I live in Peoria. I have lived there since December, 1844. I know Mr. S. DeWitt Drown in Peoria. I knew him since sometime in the spring of 1845; every day I suppose, from there on to 1848. He was surveyor. He also wrote for the newspapers. He wrote for the

Gazette awhile, published several directories. I was clerking in the postoffice then. In those days they did not have free delivery. Men used to come to the postoffice for their mail. He came and got his mail there at the office. I used to wait on him at the postoffice. My acquaintance with him did not cease when I left the postoffice. I knew him until he
457 died, or about the time he died. I think he died in the later part of 1857 or the forepart of 1858; I would not be positive about the date exactly.

(Book handed to witness.) I had a copy of this work myself at one time; I haven't got it now. That is one of the Drown directories and histories that I referred to. As to the reputation and standing of that book at the time when it was published and from that time forward, in the City of Peoria, for authenticity, accuracy and reliability,—it was good.

458 I am seventy-eight, born about 1830. In 1857 I would have been 27 years old. Mr. Drown was 25 years older than I. He would have been born in 1805.

Cross-Examination.

I have talked in regard to the work of Mr. Drown, author of this book, with nobody; as to whom I have heard speak of the work, Judge William H. Fessenden was one man. He was the man I lived with, and Mr. Hamlin and he talked the matter over, coming up the river here to sell grain, to deliver grain and take back lumber to finish the courthouse
459 in Peoria. As to whom I heard talk about Mr. Drown's book, in Peoria, they would be so innumerable I could not tell you. I have heard Judge Alls, I have heard Mose Dusenberry speak of it. It was about a year ago since I heard anybody speak about it,—refer to his book, that he said so and so about the Illinois river. The occasion of that conversation in regard to Drown's book was about high water. Besides the persons named, I heard, well, I just cannot tell, but several people anyway speak of it. As to any occasion, any particular time, except the one mentioned, when I heard it spoken of by anybody, I would not be very sure now, but I know it is the general talk all over town. Everybody refers to Drown's book of history. If I stayed here half an hour I might think of a dozen that I cannot think of now. The particular one was the book of '44 that he wrote. As to ever hearing any question raised or anybody say that some

statements in Drown's book were not true and not cor-
460 rect, I did not; no, sir. I never heard that question raised at all.

Well, it was discussed at one time in court there when I was one of the witnesses when that levee business came in court about '44, but they took the guide to go by. That was not in the Sanitary District case. It was the Central National Bank against the City, or the City against the Central National Bank; I forget which it was, one of them. I never testified in any of the Sanitary District cases.

Re-direct Examination.

This was a book which was in general circulation in Peoria in the '50s. I have owned one of them, and I guess a great many others have owned them.

I know this man, Mr. Woodcock, the printer. He lived in the premises I used to own; Mr. E. O. Woodcock, the old gentleman; I knew him in the printing and publishing business. From my acquaintance with Mr. Drown and Mr. Woodcock, I could say that this book was published by Woodcock.

461 *Re-cross Examination*

I know it was published by Mr. Woodcock, because it says so in the back; yes, sir; and everybody else says so there. "Did you get one of those books that Drown published?" That question was asked a good many times, I think.

And thereupon counsel for complainant read the title page of the book, "Drown's Record and Historical View of Peoria, from the Discovery by the French Jesuit Missionaries, in the Seventeenth Century, to the present time. Also, an Almanac for 1851, calculated for the latitude and longitude of Peoria, Illinois, 40 degrees, 40 minutes north, longitude 89 degrees 40 minutes west from the Royal Observatory at Greenwich; and 12 degrees 40 minutes west from the City of Washington. To which is added Business Directory of the City, with Business Cards by S. DeWitt Drown." Then it is signed with the national coat of arms. "Peoria, Ill. Printed by E. O. Woodcock, Main Street, 1850."

Thereupon complainant put the preface in evidence, said preface being as follows:

"In presenting this number, my second attempt of a

'Peoria Directory,' or Record of Events, &c., I will not disguise the gratification it affords me to observe the flattering manner in which my first was received by the public, and the approval of the work (together with my subsequent annual sheet) by distinguished men in our city and elsewhere as it found its way abroad. The improvements and additions which have been introduced in this will, it is hoped, meet with general approbation and insure its continuance of public favor; they will be readily seen by a glance at its contents.

At this time, when the all-engrossing theme of public and private speculation is 'California Gold' and the *dimes*, it may be hazardous in me to introduce this undertaking of a book, to vie with the periodicals of the day, or any of the 'Offerings' with their gold edges or gilded bindings, with the expectation of arresting attention in outward appearance, for as the poet has sung—

Dimes and dollars, dollars and dimes,
Poverty is the worst of crimes.

I stand convicted for the want of *dimes* to make it externally glittering, but 'all is not gold that glitters,' neither are *all the books* bound in gilt worth much more than their binding. I have, however, spared no pains in endeavoring to procure for insertion in my Record, all the information which ought to have a place in a work
462 of this kind; but it is not so full as I am desirous to have it; such omissions are to be attributed to no lack of energy on my part, but rather to the impossibility of obtaining the desired information.

I have expended some time, all must acknowledge; and the inquiry naturally arises, and I have often been asked, 'where do you get those facts?'' I cannot give you the details, but it is enough that you have them, so that they may be transmitted to posterity. If the past thirty years, under so many disadvantages, has witnessed the developments now before us, what will the next generation bring forth? If we bear in mind the basis on which the past growth has taken place, reflect on the starting point thirty-one years since, compared with the vantage ground which *we now occupy*, can any imagination in its boldest flight exceed the reality? Will not facts in the future, as in the past, outstrip fancy? For who among our 'oldest inhabitants' fifteen or twenty years

ago would have dared to predict what we now realize in Peoria? They have become the wonders of history. Could those who first came to Peoria and took up their abode on the banks of our beautiful lake, could they ever have dreamed of a future so glorious for this country and vicinity as that future has since proved? Nor can we, with all the advantages we now enjoy, of commerce and telegraphic improvements, measure the greatness we may attain by the Oquawka Railroad, plank roads and other improvements in contemplation. Who can tell what we may attain in the next thirty years of Peoria history? Conjecture is staggered at the project, and dares not attempt an estimate.

In collecting these cursory 'Scraps of History,' I have ventured to present the details of some mining operations in a field but little noticed until recently, (like the gold mines of California), but which with a reasonable amount of patient toil, may be made to yield abundantly. A few there are, however, who yet remain as links between the past and present,—links which are snapping year by year and month by month, and with them are vanishing the *historic circumstances of by-gone days and years,* when the prairies and bluffs of the Illinois in and about Peoria were inhabited by the Red Man and on the margin of our beautiful lake, here and there, 'solitary and alone' stood the log hamlet of the pioneers in the 'far West.'

My principal aim in this production is the preservation of the memorials of some of our city's history, institutions, &c. I have, since the publication of my directory in 1844, annually kept up a synopsis of our improvements by a small sheet under the title of *Peoria Annual Record, or Drown's Statistics.* I have now attempted a much more useful periodical in a different form for the convenience of the public and intend to continue the publication of similar researches from time to time, annually with an *Almanac for each year* with a hope also of enlisting others to collect facts and details concerning such institutions as remain to be noticed not only in our city and county, but such as will be of use to the citizens of our State. The co-operation of any one who may take an interest in matters of this character is solicited in collecting whatever may tend to throw light upon the

past as well as to observe authentic memorials of the present connected with the Ancient or Modern History of Peoria, that shall in any way tend to illuminate the path and enlighten the labors of the future historian, will be duly appreciated. These are the main objects of this work, although other departments have been embodied so as to be in keeping with its title and the wants of the public.

I have attempted the publication of this RECORD AND HISTORY from a decided conviction that such a work will be useful to the people of the city, county and State; and should be encouraged, I intend hereafter to make it a Book of References, communicating much valuable information to men of business and 'the rest of mankind.' The utility of such a book must be manifest to all, as has been abundantly tested in other states. Of its merits
463 and its claims to patronage, the public must judge. Unwearied efforts and untiring labor have been exerted to make it what it is; and *what it is*, with all its imperfections, is stamped upon its face. That it is *entirely free from errors* is not expected; but it is believed to be as correct as, in the nature of things, it is possible, in the first instance, to make such a book out of an unorganized mass of materials, collected from every quarter, oral and written. Undoubtedly many omissions will be observed of matters necessary to give completeness to the work. I shall be glad to receive from those who may notice errors or omissions, the sum of their knowledge for future use, there being wisdom, generally in a 'multitude of counsellors.'

I am indebted to many of the public officers of our city, as well as the 'oldest inhabitants' for many favors and much valuable information. I deem it a gratifying duty from me to the business portions of Peoria, to say a word with respect to the reception which they gave my former efforts to serve them in this way; but from the *reasonable, charitable portion of the public*, I have received every allowance for not having performed merely a stupendous difficulty but even an utter impossibility. Of the insuperable difficulty of getting up such a work, many are aware; though still a greater number are not, neither can they be without trial.

With these remarks, and with the hope that this little

Manuel will receive sufficient patronage to remunerate me for the great labor and expense which has attended its publication, and induce its continuance hereafter, it is now submitted to the *decision of the public,* very respectfully by the publisher.

S. DeWitt Drown.

Peoria, December, 1850."

Counsel for Defendant. We object to reading anything from it in evidence until we have had an opportunity to see the book and see what ought to go in as explanatory to anything Mr. Starr wants to put in. That is the same question we had up this morning. We don't want him to pick out an isolated sentence and put in evidence.

Counsel for Complainant. I respectfully submit we have a right under the proof made of the pertinence or admissibility of books to offer such parts of it as we please, and if counsel shows to the court that there are other parts explanatory that should go in, all right.

The Court. I will let it go in that way.

Counsel for complainant thereupon introduced and read in evidence the following from pages 83 and 84 of said book:

"Another of our old pioneers and citizens, who is still with us, Mr. John Hamlin, of Mass. He came here in the spring of 1821, from Springfield, in company with John Lockwood, Judge Latham (who afterwards became
464 a citizen and proprietor of city lots, and died here in 1826, and whom I shall have occasion hereafter to notice), Maj. Iles, Gen. J. Adams, and a Mr. Winchester, Maj. Graham, Indian agent, of St. Louis, came here about that time with a keel-boat and proceeded up to LaSalle prairie (Rome) where he paid off the Indians their annuity. Some of them returned and settled here subsequently, and became useful citizens in building up our city. In 1832, an Indian agency was opened and established here by the Government, of which Judge Latham was appointed agent, in place of Maj. Graham, of St. Louis, where it had heretofore been kept. John Hamlin, Esq., was a clerk, in and kept a branch of the American Fur Company's store in this place, in one of the buildings in the center of the view between Water street and the Lake—the building from the right, just below the Inn sign-post. In this store were kept Indian commodities chiefly. A portion, however, was adapted to the wants

of the citizens, who, at this time were few. Mr. Hamlin while thus engaged in this store, exported the first produce to Chicago in 1825, in keel-boats as far as the mouth of the Kankakee River, and from there in Durham boats to Chicago, (having built a storehouse at the former place to store in from the keel-boats, to be taken by the Durham boats up the Aux Plain River.

The principal articles exported were pork, beans, and other provisions for the use of the Fur Company. There were but a very few families till within a few years of this time, within the present bounds of the city, till about 1832.—"

465 EMIL RUDOLPH, a witness for the complainant, testified as follows:

Direct Examination.

Counsel for complainant offered in evidence the document labeled "Certified Copy of the Field Notes of the Meanders of the Desplaines River."

466 Which said document is in the words and figures following:

(Volume 250, page 259)

Meandered up the N
Bank of the Illinois River in
Sect. No. 25 T No. 34 N. R. No. 8 E

S	76	E	13 00	
S	63	E	14 50	
S	52	E	24 00	
S	39	E	9 00)	Bluff leaves the
			)	River
S	15	E	8 50)	
S	6	E	6 50	
S	62	E	21 50	
S	44	E	6 50	
S	28	E	1 50	Struck the post corner of F Sects No 25 & 36. Land Timbered with oak walnut elm lyn thorn vines &c good soil

Meandered up the N Bank

of the Illinois River in Sect
No. 36 T No. 34 R No 8 E
S 26 E 3 00
S 20 E 1 15
S 10 E 6 00
S 29 E 1 15 Struck the post

136.65 On the Range line
Land timbered Bottom good soil.

Aug. 17th (P. 265)
Meandered down the E bank of the Kankakee in
Sect. No. 25 T No. 34 N R No 8 E
466a N 21 E 3 00
N 26½ E 10 00) Mouth of the Illinois
S 84 E 5 00) and continued up
) the S Bank of the same
S 63 E 10 50)
S 57 E 5 00
S 50 E 5 50 Struck the post

39.00 corner of F Sects No 25 & 36
Land prairie with some
scattering oak thorn &c
2nd rate soil

(P. 266)
Meandered up the S bank of
the Illinois in Sect No 36 T No 34
N R No. 8 E
S 35 E 1 00
S 9 E 12 00
S 40 E 5 50
S 30 E 5 00
S 29 E .86 Struck the post

24.36 on the Range line
between Ranges No 8 & 9
Land same as last
Aug 19th

(Vol. 245, P. 163)
Commenced meandering on the
S E Bank of the Illinois river at the
corner of fractl Townships 34 & 34 N

of Rs. 8 & 9E, thence up the river with the meanders thereof.

C. L.

466b thence S 38 E 03.00
S 42 E 19 08
S 52 E 08 10
S 65 E 16 26
N 55 E 13 00
N 41 E 04 00
N 43 E 02 59
N 53 E 19 00
N 33 E 15 79
N 11 E 09 34

110 16

Intersected the corner of fract Sect 31 & 32 T 34 N of R 9 E

(P. 164)

Thence from the corner of fractional Section 31 & 32 T 34 N of R 9 E

C. L.

N 19 E 04 49

Intersected the corner of fractl Sect 29 & 32 T 34 N of R 9 E thence from said corner

C. L.

thence N 01 E 05 31
N 36 E 03 00
N 49 E 09 48
N 63 E 02 62
N 36 E 17 43
N 48 E 04 75
N 40 E 11 44
N 51 E 18 83
N 39 E 19 00
N 17 E 09 29
N 28-35M.E 03 81

109 45

Intersected the corner of fract Sect 20 & 29

466c The mouth of a creek fills the space between the corner of fractl sect 31 & 32—29 — 30

(165)

Thence from the corner of fractl sect
20 & 29 T 34 N of R 9 E

	C.	L.
N 16 E	14	50
N 25 E	21	80
N 28 E	05	60

Intesected the corner of fractl
sect 20 & 21
Thence from the corner of fract
Sect 20 & 21 T 30 N of R 9 E

	C.	L.
N 15 E	08	28
N 40 E	05	26
N 57 E	08	30
N 68 E	17	26
N 77 E	11	44
N 62 E	28	23
N 87 E	20	39
N 55 E	04	06
	135	12

Intersected the corner of
fractl sect 21 & 22 at the station of
N 77 E is a good spring of water

(P. 166)

Thence from the corner of fract
sects 21 & 22 T 34 N of R 9 E.

466d

	C.	L.
N 51 E	03	79

Intersected the corner of fract
sect 15 & 22
Thence from the corner of fractl
sect 15 & 22 T 34 N of R 9 E

	C.	L.
N 50 E	15	50
N 27 E	09	00
N 40 E	02	50
N 50 E	10	15
N 42 E	04	50
N 48 E	02	50
N 54 E	27	39
N 37 E	06	50
N 48 E	13	92

N 55 E 06 00
N 76 E 04 73

106 48

Intersected the corner of fract'l
sect 14 & 15
20th September 1821
(P. 167)

Thence from the corner of fractl
sect 14 & 15 T 34 N of R 9 E

	C. L.
S 82 E	09 31
N 65 E	11 18
N 54 E	13 25
N 51 E	02 65

36 39

Intersected the corner of fract
sect 11 & 14 T 34 N of R 9 E.
(P. 168)

466e thence from the corner of
fractl sect 11 & 14 T 34
N of R 9 E

	C. L.
N 38 E	26 32
N 09 E	06 44
N 01 W	17 18
N 52 W	06-59
N 42 W	04 14
N 11 W	07 36
N 17 E	07 00
N 32 E	06 18
N 20 E	05 37

at 370 L on the last course
is the mouth of a brook 20 L wide

N 04 E	02 55
M.	
N 04°30 W	02 12

91 25

Intersected the corner of fractl
sect 2 & 11 T 34 N of R 9 E
(P. 169)

thence from the corner of fract'l
sect 2 & 11 T 34 N of R 9 E

	C.	L.
N 03 E	10	00
N 10 W	41	71
N 06 W	09	19
N 05 E	10	27
N 19 E	04	76
N 47°35M E	08	51
	84	44

Intersected the corner of fractl townships 35 & 34 N of R 9 E

5th November 1821.

466f Commenced meandering on the S. E. Bank of the Illinois river at the corner of fractl Townships 34 & 35 N of R 9 E thence up the River with the meanders thereof.

	C.	L.
N 44 E	06	00
N 37 E	08	90
N 56 E	05	43
N 64 E	14	00
N 66 E	05	56
	39	89

Intersected the corner of fractl Sect 35 & 36 T 35 N of R 9 E

(P. 171.)

thence from the corner of fractl Sect 35 & 36 T 35 N. of R 9 E

	C.	L.
N 73 E	07	41
N 69 E	15	83
N 61 E	08	69
N 58 E	11	92
N 51 E	15	35
N 47 E	08	00
N 52 E	09	83
N 56 E	12	95
N 40 E	06	59
	96	57

Intersected the corner of

fractl townships 35 & 35 N of
Rs. 9 & 19 E
6th November 1821
(p. 198)

466g Commenced meandering on the
N bank of the Illinois river at
the corner of fractl Ts-34 & 34 N of Rs
8 & 9 E thence up the River with the
meanders thereof

	C.	L.
S 34 E	05	24
S 39 E	05	55
S 47 E	07	16
S 58 E	20	50
S 66 E	03	90
S 89 E	05	38
N 59 E	17	79
N 38 E	08	63
N 31 E	07	61
N 20 E	06	50
N 16 E	06	00
N 09 E	02	64
	96	90

Intersected the corner of
fractl sect 30 & 31 T 34
N of R 9 E
(P. 199)
thence from the corner of
fractl sect 30 & 31 T 34
N of R 9 E

	C.	L.
N 28 E	09	10
N 35 E	04	37

Intersected the corner of fractl
sect 29 & 30 T 34 N of R 9 E
Thence from the corner of fractl
sect 29 & 30 T 34 N of R 9 E.

466h

	C.	L.
N 43 E	31	00
N 48 E	11	86
N 45 E	13	00
N 49 E	08	69

N 39 E	14 65
N 28 E	04 08
N 22 E	07 32
	104 07

Intersected the corner of
fractl sect 20 & 29 T 34
N of R 9 E

(P. 200)

thence from the corner
of fractl sect 20 & 29 T
34 N of R 9 E

	C. L.
N 16 E	31 71
N 21 E	12 81
N 26 E	08 64
N 34 E	07 50

Intersected the corner of fractl
sect 20 & 21 T 34 N of R 9 E
thence from the corner of fract
sect 20 & 21 T 34 N of R 9 E

	C. L.
N 42 E	03 50
N 65 E	16 33
N 80 E	18 00

at 950 L on this course is the mouth
of lapage creek 200 L wide

N 75 E	08 92
N 63 E	12 25
N 72 E	10 11
	129 77

466i Intersected the corner of fract
sect 16 & 21 T 34 N of R 9 E

(P. 201)

Thence from the corner of fractl
sect 16 & 21 T 34 N of R 9 E

	C. L.
N 50 E	07 11
N 56 E	12 42

Intersected the corner of fractl
sect 15 & 16 T 34 N of R 9 E

	C. L.
N 54 E	16 07
N 65 E	06 39
N 50 E	05 56
N 53 E	14 80
N 48 E	27 87
N 50 E	15 50
N 66 E	10 66
M.	
N 59° 15 E	04 20
	120 58

Intersected the corner of fractl sect 14 & 15 T 34 N R 9 E

(P. 202)

thence from the corner of fractl sect 14 & 15 T 34 N of R 9 E

	C. L.
N 47 E	06 38
N 36 E	04 11

Intersected the corner of fractl sect 11 & 14 T 34 N of R 9 E

Thence from the corner of fractl sect 11 & 14 T 34 N of R 9 E

466j

	C. C.
N 32 E	09 36
N 24 E	16 92
N 06 E	06 52
N 68 E	06 71
N 46 E	06 45
N 16 E	04 00
N 05 E	07 75
N 07 W	08 50
N 05 E	07 80
N 16 E	12 57
N 32 E	03 94
M	
N 14° 30 E	02 27
	101 28

Intersected the corner of fractl sect 2 & 11 T 34 N of R 9 E

(P. 203)

thence from the corner of fractl sect 2 & 11 T 34 N of R 9 E

	C.	L.
N 02 E	04	18
N 08 W	24	62
N 13 W	06	28
N 32 W	04	41
N 19 W	27	21
N 11 E	16	04

Intersected the corner of fractl Townships 34 & 35 N of R 9 E

(P. 204)

Commenced meandering on the N W bank of the Illinois river at the corner of fractl townships 34 & 35 N of R 9 E thence up the River with the meanders thereof.

466k

	C.	L.
N 52 E	04	68
N 04 E	09	58
N 60 E	11	70
N 48 E	14	95
N 59 E	26	44
N 66 E	02	93
N 56 E	03	96
	74	24

Intersected the corner of fractl sect 35 & 36 T 35 of R 9 E

(P. 205)

thence from the corner of fractl sect 35 & 36 T 35 N of R 9 E

	C.	L.
N 50 E	04	14
N 72 E	07	50
N 81 E	11	20
N 50 E	08	80
N 47 E	12	50
N 54 E	04	90
N 88 E	08	00
N 62 E	18	00
N 83 E	04	72
	79	76

Intersected the corner of fractl
sect 25 & 36 T 35 N of R 9 E
(P. 206)
thence from the corner of fractl
sect 25 & 36 T 35 N of R 9 E

	C.	L.
N 38 E	06	10
N 49 E	08	22
	14	32

Intersected the corner of fractl
townships 35 & 35 N of Rs 9 & 10 E.
(P. 207)

4661 Commenced meandering on the West bank
of the Island in Illinois river at the
corner of fractl sect 11 & 14 T 34 N of
R 9 E thence down the river with the
meanders thereof

	C.	L.
S 34 W	05	50
S 45 W	07	27

thence up the River

N 78 E	08	76
N 68 E	02	78
N 58 E	10	28
N 71 E	04	03
	38	62

Intersected the corner on the E of
the Island
(P. 210)
thence from the corner of fract
sect 11 & 14 T 34 N of R 9 E on the
E of the Island

	C.	L.
N 50 E	08	00
N 36 E	09	89
N 26 E	03	50
N 60 E	03	76
N 29 E	06	23
N 00	05	31
N 15 W	12	60
W 00	04	26
S 28 W	05	90

	S 26 W	07 50
	S 67 W	08 79
	S 48 W	02 30
	S 22 W	05 50
466m	S 27 W	13 00
	S 25 W	06 00
	M.	
	S 29° 30 W	02 45
		104 99

Intersected the beginning corner on the W of the Island
14th November 1821

(P. 142)

Commenced meandering on the S. E. bank of the Illinois River at the corner of fract Townships No. 35 & 35 N of the Base line of Rs. 9 & 10 of the 3rd Principal meridian thence up the river with the meanders thereof

	C. L.
N 55 E	02 30
N 62 E	02 16
N 42 E	02 00
	6 46

Intersected the corner of fract sect 30 & 31 T 35 N of R 10 E

(P. 143)

thence from the corner of fract sect 30 & 31 T 35 N of R 10 E

	C. L.
N 60 E	04 14
N 53 E	05 50
N 58 E	09 69
N 46 E	04 30
N 33 E	03 74
N 44 E	04 91
N 50 E	11 00
N 64 E	17 91
N 35 E	04 20
466n N 11 E	06 39
N 35 E	03 00
N 55 E	11 00

N 50 E	13 00
N 41 E	07 11
	M.
N 28-30 E	01 86
	107 55

Intersected the corner of fract sect 29 & 30 T 35 N of R 10 E.

16th August 1821

(P. 144)

thence from the corner of fract sect 29 & 30 T 35 N of R 10 E

	C. L.
N 11 E	07 71
N 37 E	03 84
N 55 E	03 02
	14 57

Intersected the corner of fractl sect 20 & 29 T 35 N of R 10 E

(P. 145)

thence from the corner of fract sect 20 & 29 T 35 N of R 10 E

	C. L.
N 65 E	03 26
N 86 E	05 29

at 150 L on the last course is the mouth of a brook 3 L wide

N 75 E	05 88

at 525 L on the last course is the mouth of brook 5 L wide

4660 N 89 E	01 62
S 84 E	03 63
N 69 E	02 44
N 51 E	02 91
N 80 E	02 60
N 50 E	09 86
N 45 E	09 00
N	04 79
N 53 E	03 14
S 85 E	03 88
S 45 E	04 39
N 88 E	05 50
	68 19

(P. 146)

		C. L.
thence	N 60 E	09 35
	S 68 E	04 50
	N 87 E	06 86
		20 71

Intersected the corner of fract sect 20 & 21 T 35 N of 10 E

(P. 147)

thence from the corner of fractl sect 20 & 21 T 35 N of R 10 E

	N 15 E	09 63
	N 37 E	12 50
	N 35 E	03 12
	N 22 E	01 68
	N 30 E	09 50
	N 43 E	04 50
	N 32 E	09 00

at 425 L on this course is the mouth of a creek 100 L wide

	N 65 E	01 45
	N 87 E	05 11
466p	N 35 E	04 57
	N 14 E	04 90
	N 04 W	01 75
		67 71

Intersected the course of fractl sect 16 & 21 T 35 N of R 10 E

17th August 1821

(P. 148)

thence from the corner of fract sect 16 & 21 T 35 N of R 10 E

	C. L.
N 15 E	06 00
N 38 E	03 82
N 65 E	02 41
N 50 E	02 12
N 80 E	04 14
N 41 E	02 59
N 27 E	03 13
N 10 E	03 82
N 34 E	03 30

	N 15 E	20 78
	N 04 W	11 00
	N 13 E	14 15
	N 38 E	06 15
	N 22 E	04 38
		87 79

Intersected the corner of fractl
sect 9 & 16 T 35 N of R 10 E
(P. 149)
thence from the corner of fractl
sect 9 & 16 T 35 N of R 10 E.

		C. L.
466q	N 07 E	07 22
	N 19 W	07 00
	N 05 E	12 22
	N 15 E	06 42
	N 38 E	10 64
	N 10 E	19 80
	N 37 E	06 50
	M	
	N 20° 15 E	07 32

intersected the corner of fractl sect
9 & 10 T 35 N of R 10 E thence from
the corner of fractl sect 9 & 10
T 35 N of R 10 E.

	N 18 45 E	07 98
		85 10

Intersected the corner of fractl sect
3 & 10 T 35 N of R 10 E
(P. 150)
thence from the corner of fractl sect 3 & 10

	C. L.
N 20 E	03 27
N 28 E	22 00
N 38 E	20 40
N 06 W	17 22
N 07 E	05 00
N 09 W	18 33
	86 22

Intersected the corner of fractl
townships 35 & 36 N of R 10 E
18th August 1821

(P. 151)

Commenced meandering on the N W bank of the Illinois River at the corner of fractl townships 35 & 35 N of Rs 9 & 10 E thence up the river with the meanders thereof

		C.	L.
466r	N 46 E	14	00
	N 36 E	10	73
	N 48 E	07	36
	N 66 E	13	32
	N 43 E	13	79
	N 31 E	06	00
	N 45 E	09	00
	N 56 E	16	50
	N 40 E	06	71
	N 16 E	05	49
		102	90

Intersected the corner of fractl sect 19 & 30 T 35 N of R 10 E

(P. 152)

thence from the corner of fractl sect 19 & 30 T 35 N of R 10 E

	C.	L.
N	03	25
N 50 E	14	41
M		
N 49.10 E	03	34
	21	00

Intersected the corner of fractl sect 19 & 20 T 35 N of R 10 E

(P. 153)

thence from the corner of fract sect 19 & 20 T 35 N of R 10 E

N 66 E	22	50
N 75 E	09	50
N 86 E	05	95
N 52 E	02	56
N 34 E	10	68
N 81 E	09	13
S 73 E	21	83
M		
N 30-30E	11	39
	93	54

466s Intersected the corner of fractl
sect 20 & 21 T 35 N of R 10 E

(P. 154)

thence from the corner of fractl sect 20 & 21.

	C.	L.
N 30 E	03	26
N 44 E	08	60
N 03 E	10	00
N 07 W	07	00
N 57 E	04	50
N 50 E	07	61
M		
N 46°50 E	06	53
	47	50

Intersected the corner of fractl
Sect. 16 & 21 T 35 N of R 10 E at
the head of the station of N 57 E
is the lower point of several small
islands.

19th August 1821

(P. 155)

thence from the corner of fractl sect 16 & 21

	C.	L.
N 27 E	11	00
N 42 E	12	44

here is the head of the Islands

N 31 E	22	00
N 19 E	11	50
N 04 E	16	80
N 22 E	12	74
M		
N 30°30 E	03	43
	89	91

Intersected the corner of fractl sect
9 & 16 T 35 N of R 10 E here is the
lower point of a small island 3 ch. in length

(P. 156)

thence from the corner of fractl
sect 9 & 16.

	C.	L.
466t N 06 W	07	50
N 07 E	15	70

N 15 E	11	71
N 33 E	12	46
N 01 E	13	83
N 16 E	16	94
M		
N 38.50 E	06	83
	84	97

Intersected the corner of fractl
sect 4 & 9 T 35 N of R 10 E at
1025 L on the course of N 15 E is
a spring branch 1 L wide.

Ch.

On the course of N 16 E at 15.74 L
is a brook formed by a spring 1 L wide

(P. 157)

Thence from the corner of fractl
sect 4 & 9.

	C.	L.
N 16 E	04	76
N 24 E	03	57
	8	33

Intersected the corner of fractl
sect 3 & 4 T 35 N of R 10 E at 3 Ch
on the course of N 16 E is the head of
an island 10 Ch in length

(P. 158)

thence from the corner of fractl sect 3 & 4

	C.	L.
N 18 E	12	61

opposite this is an island 15 chains in length

N 03 E	26	36
N 03 W	13	93

here is the head of a slew which partly encircles
a small grove of timber and willow swamp

466u N 39 E	21	00
M		
N 00 50 W	04	73
	77	63

Intersected the corner of fractl
townships 35 & 36 N of R 10 E
20th August 1821

(P. 175)

Commenced meandering on the W bank of the Illinois River at the Township corner of fractl Ts 35 & 36 N of R 10 E thence up the River with the meanders thereof.

	C.	L.
N 03 W	18	50

opposite this is a small Island

N 29 W	11	50
N 40 W	09	59
N 25 W	08	50
N 08 W	07	00
N 02 E	09	00
N 06 E	14	22
M		
N 23-35 E	06	58
	84	89

Intersected the corner of fractl sect 27 & 34 in the 4 last courses we have passed several small islands the principal channel at these Islands is on the W.

(P. 176)

thence from the corner of fractl sect 27 & 34 T 36 N of R 10 E

	C.	L.
N 20 E	16	50

on this course we passed a small Island

N 15 E	07	50

On this course we passed a small Island.

466v

The channel at the above named Islands is on the W.	N 24 E	04	28
	N 11 E	07	00
	N 27 E	24	00
	N 35 E	31	00
	M		
	N 41-25-E	06	57
		96	85

Intersected the corner of fractl sect 22 & 27 here is the lower end of an Island the principal channel on the E. thence from the corner

of fractl sect 22 & 27 T 36 N of
R 10 E

	C.	L.
N 38°E	11	50
N 56 E	21	50
N 37 E	11	82
N 16 E	09	86
N 24 W	16	39
N 44 W	17	24
N 20 W	10	35
N 21 W	03	46
	102	12

intersected the corner of fractl sect 15 & 22
there are several small Islands between these
courses with the principal channel on the W
except the lowest down

(P. 178)

thence from the corner of fractl sect 15 & 22
T 36 N of R 10 E.

	C.	L.
N 28 W	13	68
N 01 W	11	64
N 24 E	23	44

466w in the above courses we passed 3 Islands
channel on the W.

N 01 E	13	92
N 18 W	11	24
N 04 W	10	33
	84	25

Intersected the corner of fractl sect 10 & 15
in the last courses we have passed 5 small islands.

(P. 179)

thence from the corner of fractl sect 10 & 15
T 36 N of R 10 E.

	C.	L.
N 19 W	17	68
N 10 W	07	73
N 22 E	30	00
N	09	34
N 10 E	08	00

since leaving the corner we have passed sundry island channel on the W

		C.	L.
	N 03 E	10	90
		83	65

intersected the corner of fractl sect 3 & 10 T 36 N of R 10 E in the last course we passed a small island

(P. 180)

thence from the corner of fractl sect 3 & 10 T 36 N of R 10 E

		C.	L.
thence	N 03 E	25	00
	N 14 W	09	69
	N 02 E	16	68
x	N 23 W	06	90
	N 41 W	07	00
	N 06 W	10	77
	N 10 E	04	38
		80	42

466x intersected the corner of fractl townships 36 & 37 N of R 10 E a few chains below this intersection is the lower part of a small Island.

30th September 1821

(P. 181)

Commenced meandering on the E bank of the Illinois River at the corner of fractl. townships 36 & 35 N of 10 E thence up the River with the meanders thereof.

	C.	L.
N	09	91
N 14 E	10	70
N 17 W	06	00
N 68 W	08	93
N 24 W	08	68
N 11 W	10	34
N 02 W	14	50
N 20 E	08	40
N 07 W	07	70
N 29 W	02	71
N 55 W	01	67
	89	54

intersected the corner of fractl sect 27 & 34

(P. 182)

thence from the corner of fractl sect 27 & 34
T 36 N of R 10 E with the meanders of the River

		C.	L.
	N 34 E	06	89
	N 43 E	06	34
	N 26 E	09	34
	N 07 E	12	50
	N 17 E	11	20
	N 30 E	34	00
	N 57 E	04	29
466y	N 70 E	12	50
	N 37 E	03	91
		100	97

Intersected the corner of fractl sect
22 & 27 on the E bank of the River thence
from the corner of fractl sect 22 & 27
T 36 N of R 10 E. with the meanders of the river.

	C.	L.
N 63 E	05	00
N 73 E	04	21
N 40 E	13	30
N 47 E	04	47
	26	98

Intersected the corner of fract sect 22 & 23

(P. 184)

thence from the corner of fractl sect
22 & 23 T 36 N of R 10 E with the meanders of
the River

	C.	L.
N 49 E	03	74
N 29 E	14	58
N 03 E	11	71
N 21 W	05	78
N 37 W	05	73
N 66 W	03	86
N 49 W	02	69
	48	09

Intersected the corner of fractl sect 22 & 23
we cross a creek 75 L wide in the last course,
runs S

(P. 185)

thence from the corner of fractl sect 22 & 23 T 36 N of R 10 E with the meanders of the River.

		C.	L.
466z	N 40 W	23	83
	N 13 W	09	21
	N 46 W	02	64
		35	68

intersected the corner of fractl sect 15 & 22

(P. 186)

thence from the corner of fractl sect 15 & 22 T 36 N of R 10 E.

	C.	L.
N 02 E	12	33
N 22 W	05	64
N 22 E	08	00
N 32 E	08	81
N 16 E	16	35
N 03 E	14	50
N 10 E	06	74
N 36 W	06	50
N 28 W	05	50
N 39 W	01	41
	85	78

intersected the corner of fractl sect 10 & 15

(P. 187)

thence from the corner of fractl sect. 10 & 15 T 36 N of R 10 E

	C.	L.
N 01 W	05	00
N 10 E	07	06
N 19 W	13	38
N 03 E	10	00
N 21 E	23	00
N 10 W	11	73
N 02 W	07	00
N 03 W	05	43
	82	60

467 intersected the corner of fractl sect 3 & 10 on the E bank of the Illinois River

(P. 188)

thence from the corner of fractl sect 3 & 10 T 36 N of R 10 E with the meanders of the River

	C. L.
N 13 E	21 50
N 08 W	15 76
N	12 83
N 15 W	14 00
N 31 W	05 00
N 69 W	97 10
N 31 W	03 43
N 14 E	04 28
M	
N 15°, 30 E.	03 89
	87 79

intersected the corner or fractl Townships 36 & 37 N of R 10 E.

October 2nd 1821

(P. 189)

Commenced meandering on the E bank of the Illinois river at the corner of fractl Townships 36 & 37 N of R 10 E thence up the River with the meanders thereof

	C. L.
N 44 E	02 72
N 21 E	09 22
N 34 E	10 40
N 11 E	04 72
N 57 E	02 30
N 66 E	06 62
	35 98

intersected the corner of fractl 34 & 35 T 37 N of R 10 E.

(P. 190)

467a thence from the corner of fractl sect 34 & 35 T 37 N of R 10 E

	C. L.
N 61 E	29 00

at 250 L on this course is the head of a slew 300 L wide

N 40 E	20 39
N 29 E	26 13
	75 52

intersected the corner of fractl 26 & 35
T 37 N of R 10 E

(P. 191)

thence from the corner of fractl sect 26 & 35
T 37 N of R 10 E with the meanders of the River.

	C. L.
N 33 E	34 40
N 47 E	07 00
M	
N 43°30 E	08 70
	50 10

Intersected the corner of fractl sect 25 & 26
T 37 N of R 10 E
9th October 1821

(P. 192)

thence from the corner of fractl sect 25 & 26
T 37 N of R 10 E with the meanders of the River.

	C. L.
N 76 E	05 50
N 85 E	04 58
N 72 E	06 20
N 64 E	06 23
N 72 E	05 50
N 83 E	21 57
N 76 E	07 88
467b N 51 E	03 90
N 41 E	14 00
N 24 E	07 29
N 40 E	05 68
N 51 E	07 60
	95 93

intersected the corner of fractl townships
37 N of Rs 10 & 11 E on the S E bank of the River.

(P. 193)

Commenced meandering on the N. W. bank of the Illinois River at the corner of fractl Townships 36 & 37 N of R 10 E thence up the River with the meanders thereof.

	C.	L.
N 12 E	07	60
N 24 E	06	92
N 37 E	11	12
N 46 E	13	00

at 150 L on the last course is a spring branch 5 L wide, S at this place is the lower point of a lake which the River passes through

N 28 E	10	16
	48	80

intersected the corner of fractl sect 34 & 35 T 37 N of R 10 E

(P. 194)

thence from the corner of fracl sect 34 & 35 T 37 N of R 10 E

	C.	L.
N 12 E	20	62
N 22 E	12	50
N 39 E	10	21
	43	33

467c intersected the corner of fractl sect. 26 & 35 T 37 N of R 10 E

(P. 195)

thence from the corner of fractl sect 26 & 35 T 37 N of R 10 E

	C.	L.
N 37 E	12	00
N 23 E	05	42
N 39 E	10	00
N 48 E	13	00
N 69 E	07	50
N 43 E	12	00
N 55 E	11	66
N 81 E	09	60
S 86 E	06	25
	87	43

intersected the corner of fractl sect 25 & 26 T 37 N of R 10 a few chains below this intersection is the head of the lake spoken of before

(P. 196)

thence from the corner of fractl sect
25 & 2 T 37 N of R 10 E

	C. L.
N 64 E	09 31
N 70 E	07 76
N 79 E	15 73
N 60 E	05 50
N 43 E	13 60
N 53 E	06 00
N 66 E	09 90
	67 80

intersected the corner of fractl
sect 24 & 25 T 37 N of R 10 E
467d here is a small lake in the River

(P. 197)

thence from the corner of fractl sect
24 & 25 T 37 N of R 10 E

	C. L.
N 66 E	06 00
N 77 E	11 00
M	
N 66°30 E	06 00
	23 00

intersected the corner of
fractl townships 37 & 37 N of Rs 10 & 11
E on the N W bank of the Illinois river
10th October 1821
(Vol. 247, p. 143)
Meandered down the Laplain
N side through Sect No 1 town
No 37 N R 11 E

Course	C. L.
S 79 W	11.50
N 83 W	12.50
S 70 W	7.65 to the cor of F Sect 1 & 12

Land bottom soil good beaver bush & willow very
thick Tim'r hickory elm ash maple oak &c thence
through Sect 12

S 48 W	8.50
S 31 W	8.50
S 67 W	7.50

S 79 W 4.00
S 48 W 4.40
S 39 W 8.50
S 54 W 4.50
S 36 W 2.50
467e S 58 W 5.00
S 76 W 10.66 to the cor of F sects 11 & 12
Last similar to the last & timber also
Oct. 11th 1821

JNO WALLS

(P. 144)

Continued through Sect 11
S 46 W 13.50
S 14 W 8.00
S 40 W 7.15
S 61 W 16.00
S 73 W 16.05
S 49 W 7.50
S 65 W 5.65
S 89 W 4.85
S 68 W 7.83 to the cor of F Sect 11 & 14
Land low wet bottom undergrowth very
thick timber ash elm maple oak hickory &c
the River is very & swampy lower end
Continued through Sect 14
S 51 W 9.77
S 56 W 5.44 to the cor of F Sects 14 & 15

Land wet prairie
Continued through Sect 15
S 53½ W 6.00
S 42 W 9.50
S 16 W 7.15
S 43 W 5.00
S 85 W 9.06
S 53 W 11.50
N 89 W 14.25
S 47 W 2.50
S 52 W 13.00
S 62 W 4.00
467f S 61½ W 18.00 to the cor. of F Sects 15 & 16
207.70
Land principally prairie undergrowth
in many places very thick

(P. 145)

Continued through Sect 16.

S	70½	W	18.97
S	83	W	5.00
S	67	W	8.50
S	68	W	5.00
S	68½	W	5.50
S	47	W	4.00
S	34	W	5.50
S	13	W	1.11 to the cor. of F Sect. 16 & 21

Land similar to last the River a continued chain of Swamp pond and lakes

Continued through Sect 21

S	11½	W	7.00
S	4	W	7.50
S	27	W	8.00
S	53	W	13.50
S	84	W	6.50
N	44	W	2.83
N	34	W	17.00
N	9	E	3.27
N	3½	W	5.94 to the cor. of F Sects. 20 & 21

125.12

Land & similar to last & river also Oct. 12th 1821 Jno Walls

(P. 146)

continued through Sect 20

	N	75	W	12.00
	S	73	W	10.00
467g	W	10	W	9.13
	S	18½	W	7.50
	S	26	W	10.00
	S	55	W	7.83
	S	48½		8.50
	S	37	W	6.00
	S	17	W	7.50
	S	59	W	14.75
	N	88½	W	9.50
	N	78	W	9.92 to the cor of F Sects 19 & 20

Land prairie very wet soil

Continued through Sect 19

S	89½	W	12.50
N	59½	W	10.50

	N	56½ W	13.66
	S	49½ W	6.50
	S	39 W	10.00
	S	20 W	6.50
	S	45 W	1.50
	S	38 W	6.00
	S	68 W	13.66
	S	59 W	8.59 to the cor of F Sects 19

202.04

& 24 on the Range Line between 10 & 11 E
Land very wet prairie River continues wide & swampy

(P. 147)

Meandered up the South side of the Laplain through Sect 30

	Course		C.L.
	N	57 E	00.43 to the cor of F Sect 19 & 30

Continued through Sect 19

467h	N	70½ E	6.00
	N	77 E	14.50
	N	86 E	7.50
	N	58 E	10.50
	N	46 E	4.50
	N	15 W	4.38
	N	44 W	5.00
	N	18 E	4.50
	N	49 E	3.50
	N	89½ E	3.13
	S	60 E	5.20
	S	38 E	2.83
	S	25½ E	6.00
	S	52 E	6.00
	N	66 E	10.50
	S	80½ E	11.60 to the cor of F Sects 19 & 20

Land low wet prairie very swampy
Continued through sect 20

	S	83 E	20.00
	N	71½	6.68
	N	53 E	7.00
	N	43 E	8.00
	N	51 E	4.67
	N	32 E	7.20
	N	73½ E	11.00

	N 56½	10.00
	N 49½	10.50
		191.43 Carried over (P. 148)
	S 85½	9.60 to the cor of F Sects 20 & 21

Land very low & wet mostly prairie
River in many places 20 & 30 chains wide
Continued through Sect 21.

467i	S 33 E	9.00	
	N 86 E	12.00	
	N 63½ E	14.50	
	N 51½ E	9.16	
	N 26½ E	8.50	Oct. 13th 1821
	N 13 E	5.50	Jno Walls
	N 22 W	3.50	
	N 22 E	5.50	
	N 48½ E	3.75	to the cor of F Sects 16 & 21

Land & River similar to last
Continued through Sect 16

N 40½ E	4.50	
N 81½ E	10.25	
S 77½ E	5.00	
N 86½ E	7.50	
N 75 E	6.76	
N 78 E	2.47	to the cor of F Sects 15 & 16

Land & River similar to last
Continued through Sect 15

S 76 E	7.21	
S 70½ E	4.50	
N 89 E	11.50	
N 87½ E	7.00	
	147.70	carried up (P. 149)
N 82 E	8.00	
N 56 E	4.00	
N 34½ E	4.00	
N 41½ E	5.83	
N 47 E	3.68	
N 69 E	3.71	
N 76½ E	5.50	
467j N 73 E	7.16	

N 57½ E 4.00
N 28 E 8.36 across an inaccessible swamp
N 4 E 5.50
N 85 E 6.47 to the cor of F sects 14 & 15
The River is very wide an inundated Island
laying opposite this line
land a wet marsh
Continued through Sect 14
N 79½ E 2.50
N 64½ E 8.30
N 71 E 10.00
N 57½ E 4.50
N 41 E 6.27
N 43½ E 6.17
N 57 E 9.40
N 40 E 7.50
N 19½ E 5.20
N 3½ E 4.50
N 5½ E 5.63 to the cor of F Sects 11 & 14

136.18

Land & Prairie similar to last
Oct 14th 1821 Jno Walls
(P. 150)

Continued through Sect 11.
N 6 W 3.00
N 16½ W 3.08
N 58 E 4.50
N 75 E 15.00
N 59½ E 4.50
N 51½ E 5.20
N 44 E 2.19
N 28 E 6.15
467k N 39 E 2.50
N 22½ E 3.50
N 6 W 3.21
N 18½ E 2.11
N 37½ E 2.46 to the cor of F Sects 11 & 12
This line is low & wet Tim'r oak hicky ash
elm maple linn &c. beaver or swamp bush almost
inaccessible
Continued through Sect 12
N 61 E 6.50
N 74½ E 6.50

N 69 E	5.50
N 51 E	4.29
N 28 E	4.22
N 35 E	9.14
N 85 E	6.62
N 63½ E	6.50
N 28 E	4.40
N 37 E	11.00
	122.87 carried up

(P. 151)

N 60 E	5.31
N 73 E	5.50
S 81 E	11.30
N 82½ E	7.50
N 62½ E	3.59 to the cor of F Sects 7 & 12

on the line between Ranges 11 & 12 East
Tim'r undergrowth & land similar to last
Continued up same side
through Sect 7 T 37 N R 12 E

4671

Course	C. L.
N 71 E	2.50
N 67 E	2.82 to the Cor of F Sects 6 & 7

Continued through Sect. 6

N 73 E	9.00
S 84 E	3.00
N 75 E	6.00
N 63½ E	7.50
N 18 E	4.00
N 37 E	6.00
N 38½ E	8.00
N 58½ E	11.50
S 80 E	5.50
S 40½ E	9.00
N 89½ E	8.00
N 65½ E	12.00
N 52½ E	9.59 to the cor of F Sects 5 & 6

Land Rock bottom Tim Oak hicky ash elm linn mple &c

(P. 152)

Continued up through Sect 5

N 44 E	3.00
N 31½ E	9.00
N 70½ E	20.25

	N 30 E	2.22	
	N 11 E	2.50	
	N 9 W	3.60	across the swamp
	N 17 W	2.33	
	N 6 E	3.66	
	N 19 E	7.00	
	N 2 E	8.19	
	N 62½ E	12.83	
467m	N 26 E	2.33	to the cor of F Sects 5 & 32

on the line between Towns 37 & 38 N R 12 E
Land & timber similar to last
Continued through Sect. 32 T 38
N R 12 E up same side

Course	C. L.	
N 51 E	6.00	
N 42½ E	12.50	
N 46 E	4.39	
N 51 E	5.50	
N 48½ E	6.30	
N 50 E	5.50	
N 50½ E	9.11	to the cor of F sect. 32 & 33
	128.21	

Land very low swamp prairie near the River.
(P. 153)
Continued through Sect 33

N 45½ E	7.50	
N 49½ E	6.00	
N 66½ E	7.00	
N 61 E	6.00	
N 67½ E	8.00	
N 71 E	9.00	
N 54 E	6.50	
N 48½ E	9.00	
N 44½ E	9.54	Oct. 15th 1821
N 29 E	6.00	Jno Walls
N 55½ E	5.50	to the cor of F Sets 28 & 33

Land similar to last very swampy
467n Continued through Sect 28

N 53½ E	5.50	
N 65½ E	8.00	
N 88 E	6.42	to the cor of Fractl
	99.90	to Sects 27 & 28

Land similar to last River is very wide
rather a lake or swamp
(P. 154)
Continued through Sect 27

N 53 E	13.00
N 30½ E	8.50
N 51 E	8.00
N 40 E	10.00
N 40 E	9.00
N 26 E	11.50
N 2 E	8.50
N 46 E	9.50
N 63 E	4.50
N 9 W	7.00
N 48 E	5.00
N 40 E	2.28 to the cor of F Sects 22 & 27

Land & River similar to last very wide
Continued through Sect 22.

N 30½ E	8.50
N 14 E	8.50
N 31½ E	7.50
N 11½ E	11.00
N 5 E	8.00
N 15 E	7.50
N 6 W	1.50
N 23 E	3.50
N 56 W	3.40
467o N 16 E	2.00
N 25 E	5.50
	163.68 carried up

(P. 155)
C. L.

N ½ W	11.00
N 35 E	9.67 to the cor of F Sects 15 & 22

Land similar to last low prairie
River very wide
Continued through Sect 15

N 33½ E	4.06 to the cor of F Sects 14 & 15

Continued through Sect 14

N 53 E	5.50
N 35½ E	9.00
N 48 E	10.00
N 45 E	26.50

N 56 E	7.50	
S 78 E	5.68	
N 66 E	4.LL	
N 26½ E	4.80	
N 17 E	2.56	
N 12 W	3.68	
N 38 E	3.00	
N 22½ E	5.37	
N 22 E	3.50	
N 30½ E	3.72	
N 29 E	5.00	
N 21 E	5.50	
N 65 E	6.06	to the cor of F Sects 11 & 14

136.22

Land prairie rather more high and dry
467p a little timber on the River in places

(P. 156)

Continued through Sect 11

N 60 E	4.50	
N 47 E	6.39	
N 22 E	3.16	to the cor of F Sects 11 & 12

Land similar to last

Continued through Sect 12.

N 10 E	1.95
N 17 E	4.00
N 3½ E	6.00
N 7½ W	7.24
N 69 E	2.55
S 39 E	3.50
S 47½ E	7.50
S 77½ E	2.50
N 77 E	2.86
N 48 E	6.50
N 52 E	6.50
N 42 E	3.75
N 21 E	3.50
N 19 E	8.00
N 57 E	5.81
N 85½ E	4.15
N 82 E	3.50
N 80 E	5.00
N 64½ E	13.00

	N 67½ E	5.79	
	N 54 E	6.00	
		123.63	carried up
		(P. 157)	
	N 32½ E	3.50	
	N 18 E	4.47	across the portage
467q	N 33½ W	5.71	creek or swamp
	N 38 W	3.50	Oct. 16th 1821
	S 52 W	4.00	Jno Walls
	N 36 W	2.50	
	N 1½ E	5.30	
	N 5½ W	1.82	to the cor of F Sects 1 & 12
		30.81	

Land level prairie some scattering tim'r on the River soil good
Continued through Sect. 1.

N 7 E	1.75	
N 20 W	3.84	
N 26 W	2.90	
N 41 W	4.50	
N 6½ E	2.00	
N 84 W	2.38	across a swamp
N 54 W	2.25	
N 8 E	2.50	
N 6 E	16.00	
N 4 W	17.00	Land high & dry soil
N 18 E	5.00	good 2nd rate Tim'b B & W oak
N 43 E	6.50	
N 5 E	7.50	
N 28½ W	10.00	
N 41½ W	4.00	
N 66½ W	2.37	to the cor of F Sect 1 on
	91.39	

the town line between Towns 38 & 39 R 12 E
(P. 158)
Meanders down the N side of Laplain through Sect No. 1 T 38 N R 12 E from the head of navigation

467r	S 34 E	4.06	
	S 48 E	6.00	
	S 24 E	2.65	
	S 43 E	6.93	

	S 15½ W	5.00	
	S 30½ W	7.50	
	S 3½ W	13.00	
	S 13 E	3.50	
	S 5½ W	13.00	
	S 7 W	7.00	
	S 18 W	8.76	Oct 17th 1821
	S 41½ W	4.21	Jno Walls
	S 6 E	7.23	to the cor of F secs 1 & 12
		88.84	

Land high level prairie a little timber lower end on the Bank of the River
River crooked wide & swampy

(P. 159)

Continued through Sect. 12

	S 18 E	3.50
	S 33 E	4.50
	S 42½ E	6.00
	S 56½ E	4.50
	S 73½ E	4.00
	S 88½ E	3.50
	N 80 E	5.60
	S 58½ E	3.00
	S 14½ W	3.65
	S 34 W	3.18
	S 68½ W	4.00
	S 81½ W	3.50
	S 62½ W	3.50
467s	S 64 W	4.00
	S 66½ W	7.50
	S 73½ W	3.50
	S 86½ W	4.50
	N 84 W	5.21
	S 58 W	4.10
	S 26 W	3.50
	S 19½ W	3.20
	S 25 W	2.31
	S 7½ W	2.70
	S 25 W	3.06
	S 47½ W	5.50
		101.51

continued over

(P. 160)

	S 55 W	1.62
	S 52½ W	4.50
	N 55 W	1.87
	N 43 W	4.34
	N 3 W	2.73
	N 50 W	1.83
	N 64½ W	4.16 across the mouth of
		21.05 a swamp to the cor

of Fractl Sects 11 & 12 River crooked & Swampy soil rather wet mostly prairie
Continued through Sect 11.

	S 59½ W	5.64
	S 26½ W	4.56
	S 13½ E	5.50
	S 8 E	4.00
	S 6½ W	3.22
	S 13½ W	5.00
	S 42 W	6.14
	S 59 W	6.14
	S 59 W	5.03
467t	S 71½ W	2.21
	S 69 W	3.22 to the cor of F Sects 11 & 14
		44.52

Land similar to last a little scattering timber in places on the River

(P. 161.)

Continued through Sect 14.

	S 25½ W	5.50
	S 26½ W	5.50
	S 27½ W	4.50
	S 18 W	4.00
	S 18½ W	3.69
	S 32½ W	2.05
	N 81½ W	2.63
	N 89½	4.22 across the mouth of
	S 46 W	3.00 a swamp
	S 69½ W	3.83
	S 51 W	15.00
	S 45 W	21.00
	S 39 W	15.21 to the cor of Fractl
		91.13 Sects. 14 & 15

Land Low but dry prairie soil good
Continued through Sect 15.

	S 40 W	12.26
	S 39 W	11.71 to the Cor of Fractl
		23.97 Sects 15 & 22

Land similar to last
(P. 162)
Continued through Sect 22

467u	S 28 W	11.00
	S 12½ E	7.17
	S 54 E	3.50
	S 7 W	8.24
	S 6 W	6.50
	S 17½ W	7.00
	S 9 W	7.50
	S 25½ W	9.37
	S 41 W	4.71
	S 20 W	14.19
	S 38½ W	9.17
		88.35 to the cor of F Sects 22 & 27

Land very low & wet prairie
Continued through Sect 27

	S 34 W	9.15
	S 30½ W	7.00
	S 27½ W	8.20
	S 31 W	7.41
	S 48½ W	9.50
	S 44 ½ W	9.30
	S 53 E	7.71
	S 48 W	9.19
	S 51½ W	1.20 to the Cor of Fractl
		68.66 Sects. 27 & 28

Land similar to last
River wide & Swampy
(P. 163)
Continued through Sect 28.

	S 46½ W	7.81
	S 55½ W	4.70
	S 64½ W	7.19

	S 44 W	10.00	
	S 41 W	10.60	to the Cor of Fractl
		40.41	Sects 28 & 33
467v	Land very low & swampy		
	immediately on the River a swamp		
	Continued through Sect 33		
	S 37 W	5.74	
	S 39½ W	8.00	
	S 52½ W	8.32	
	N 84½ W	5.00	
	N 33½ W	2.00	
	N 8 W	3.18	
	N 44½ W	2.23	
	S 55 W	3.75	Land similar to
	S 47½ W	5.00	last mile
	S 42 W	5.00	
	S 42 W	5.50	
	S 43 W	5.50	
	S 45½ W	7.00	
	S 51 W	7.60	
	S 43½ W	4.34	to the Cor of Fractl
		73.16	Sects. 32 & 33
		(P. 164)	
	Continued through Sect 32		
	S 43 W	7.50	
	S 48 W	7.50	
	S 47 W	13.00	entered timber
	S 46½ W	16.50	
	S 39½ W	8.24	Lower end of this line is
	S 43 W	5.84	timbered oak hickory ash
	S 50 W	3.50	elm &c.
	S 64½ W	1.60	to the Cor of Fractl
			Sects 5 & 32 on the
	Line between Towns 37 & 38 R. 12 E		
	Continued down same side		
	through Sect 5 T 37 N R 12 E		
467w	S 60½ W	9.00	
	S 24 W	9.24	
	S 19½ E	3.50	
	S 11½ W	3.50	
	S 23 W	3.64	

S 1 E	6.50	
S 11½ W	5.50	
S 74½ W	8.50	
S 71½ W	12.00	
S 48½ W	1.86	to the Cor of Fractl

127.01 Sects. 5 & 6

River banks very low Tim'r
oak ash maple linn hickory

(165)

Continued through Fractl Sect 6

S 48 W	5.56	
S 28 W	5.00	
S 42½ W	4.00	
S 62½ W	5.14	
S 89 W	3.50	
N 36 W	3.00	
N 27 W	3.74	
N 61 W	0.37	
S 73 W	6.90	
S 50½ W	10.50	
S 38 W	3.84	
S 46 W	2.72	
S 53 W	6.35	
S 37 W	7.79	
S 71½ W	7.21	
S 88½ W	6.10	
S 65 W	6.50	
S 56½ W	3.70	to the Cor of Fractl

100.92 Sects 1 & 6 on the
467x line between Ranges 11 & 12 E
Place of beginning
Land low & wet Tim'r oak
hickory ash maple &c

Oct. 21st 1821

JNO WALLS

(P. 166)

The river throughout
the greater part of those towns is
a mere connection of lakes ponds & swamp
in many places very wide

JNO WALLS

467y STATE OF ILLINOIS

AUDITOR'S OFFICE.

Springfield, May 9th, 1908.

I, James S. McCullough, Auditor of Public Accounts of the State of Illinois and Keeper of the Seal of the Office of Auditor of Public Accounts of Illinois, and by law custodian of the field notes and plats of the United States surveys of lands in Illinois, transferred from the United States Surveyor General's office to this State pursuant to an Act of Congress, do hereby certify that the foregoing is a true, correct and complete copy of all the said field notes of the survey of the Illinois river and River Laplain from its mouth or junction of said river with the Kankakee River in Sections Twenty-five (25) and Thirty-six (36), Township Thirty-four (34) North, in Range Eight (8) East of the Third Principal Meridian as far north as the northern boundary line of Township Thirty-eight (38) North, Range Twelve (12) East of the Third Principal Meridian, being all of the field notes contained in the volumes and pages hereinbefore specified, all of which appears from the records of the field notes of surveys on file in this office.

In Testimony Whereof, I hereunto subscribe my name and affix the seal of my office, the day and year first above written.

J. S. McCULLOUGH

(Seal) *Auditor of Public Accounts.*

467z STATE OF ILLINOIS, } ss.
SUPREME COURT. }

I, J. McCan Davis, Clerk of the Supreme Court of the State of Illinois, and keeper of the records and seal thereof, do hereby certify the above and foregoing to be a true copy of Field Notes Exhibit 1 contained on pages 5720 to 5770 inclusive of the transcript of record in a certain cause entitled in this Court The People of the State of Illinois ex rel Charles S. Deneen, Governor and William H. Stead, Attorney General No. 6242 vs. The Economy Light & Power Co. filed in this office on the 16th day of November A. D. 1908.

Witness my hand and Seal of said Supreme Court at Springfield, in said State this 27th day of September A. D. 1911.

J. McCAN DAVIS

(Seal) *Clerk.*

The certificate attached to said Field Notes as originally introduced by counsel for the State of Illinois reads as follows:

"STATE OF ILLINOIS,

Auditor's Office,

Springfield, December 9, 1907.

468 I, James S. McCullough, Auditor of Public Accounts of the State of Illinois and by law custodian of the field notes of surveys of lands in Illinois, do hereby certify that the foregoing is a true, correct and complete copy of the field notes of the meander survey of the Illinois River and the river Des Plaines, from its mouth or junction of said river with the Kankakee River in Sections 25 and 36, Township 34 North, Range 8 East of the Third Principal Meridian, as far north as the northern boundary line of Township 38 North, Range 12 East of the Third Principal Meridian; all of which appears from the records of the field notes of surveys on file in this office."

In connection therewith, counsel for complainant read
468a the statute entitled "An Act to Revise the law in relation to County Surveyors and the Custody of the United States field notes, approved March 2, 1874, in force July 1, 1874":

"Section 10. As soon as the present custodian of the original field notes of the United States surveys transferred from the United States Surveyor General's office to this state, pursuant to acts of Congress, shall complete the copying thereof pursuant to law, and the New State House is ready for occupation by the State officers, said custodian shall deposit said field notes and the said copies and all papers and documents pertaining thereto in the office of the Auditor of Public Accounts, thereupon the office of said custodian shall keep and said field notes and copies shall be and remain in the custody of the Auditor of Public Accounts and copies thereof made and certified by him under this official seal shall be competent evidence."

Upon objection by counsel for defendant, after some colloquy between counsel the court said:

468b "The COURT. All right. Then it is stipulated by counsel that the document now introduced— We will come to whether the title page is to be excluded, in a

moment—excluding the certificate, excluding the cover written in counsel's office, is a correct copy of the original field notes of the original government survey, deposited in accordance with the law with the Auditor of Public Accounts; counsel for defendant, however, reserving their objections as to the competency of a copy of the original field notes being admitted in this case. Excluding also the title page of said copy, placed thereon by the Auditor."

Here follows an explanatory note stating that the said field notes "Exhibit 1" and the other documents and documentary evidence offered or introduced in evidence herein, which are not set forth in connection with the statement herein are set forth in this certificate of evidence at the close of the testimony in the appendix hereto marked "Appendix II."

Said explanatory note also states that proper references are made to said "Appendix II" and the documentary evidence therein set out are incorporated in said certificate of evidence by such references at the place of its offer and introduction and a reference to each of the said exhibits by the page of said "Appendix II" where it so appears, follows the statement of the offer or introduction of each of said exhibits, thus Field Notes Exhibit I.

Thereupon counsel for complaint had marked for identification "Survey Exhibit 4."

And thereupon the witness testified as follows:

My name is Emil Rudolph, age fifty-three, residence,
477 Highland Park, Lake County, Illinois; my occupation, land surveyor. I have been engaged in the business of surveyor since 1871.

478 The principal part of my work is in establishing boundary lines, the lines of lands and many larger surveys of the railroads and parks and cemeteries. Anything in the surveying line, locating the meander lines of lakes and rivers.

I have been compelled to become acquainted with and have become acquainted with the plats, maps and rules of the office of the United States Government in charge of land surveys in Illinois, made by and under the direction of the surveyor general.

These documents, Field Notes, Exhibits 1, 2 and 3,—
484 for instance take the one marked Exhibit 2, I see in the first page there in parenthesis, Volume 250, page 263, and then the legend, "Meander by the S. bank of Illinois River,

in Sec. No. 26, T. No. 34, N. R. No. 8 east." Below that there is a column—there are columns "N. E. 81 E." and opposite that eight and two ciphers. Below that N. 84 E. and to the right of that five and two ciphers.

486 N. 81 means North 81 degrees east, that is the course as run; eight and two ciphers means 8 chains. North 81 east is the course and 8 chains is the distance, which this course is measured to the next course. The other ab-
487 breviations have the same meaning, right through until they strike the corner post, the section corner.

Volume 250, page 263, means the volume of Government plat books, or Government surveys, and the page is the page number of that volume, where these Government field notes appear.

"Meander by the S. bank" means meander by the south bank of the Illinois River; in Sec., that is in Section 26, T. is Township; No. 34 N. is north; R. is range, No. 8 E. is east; and then the courses and distances follows. That "east" means east of the third principal meridian.

487 "Meander by the south bank," as understood by surveyors—as the running of a line taking its course and measuring its distance from some given starting point and continuing on to the ending point. That I would call surveying a meander line, and is generally applied as the meander line of the river, or lake or body of water, and the margin of the body.

The meander line is indicated on this map by the border lines of the stream itself. The map is drawn on a scale of two inches to the mile and makes it too small to admit of any specific marking.

490 The map indicates the meander line, the way that the Government survey plats indicate the meander line. They show the location of the river in a general way by showing the direction and course between two meander posts in the section.

I have tested the map by actual survey. The map shown me together with the field notes that have been shown me of the meander line of the Desplaines River in Section 25, Township 34, Range 8, ascertain or make certain the location of the meander line of the Desplaines River in that section.

I can from these field notes which have been shown me and from this plat which has been shown me find a meander line located by them.

492 Looking at Section 25, Township 34, Range 8, shown on this plat, I observe on the northeast quarter the phrase abbreviated "160 Ac."; the northeast quarter is 160 and in the southwest is 146.24; in the northwest is 101.90; in the southeast is 94.41. The figures represent the area of the different fractional quarters, in acres. The area which is covered by a pale blue band which is labeled the name of the river would be outside of the meander line. On several other sections the legend 640 acres means that the section contains 640 acres. Sections 34 and 35 in Township 34, Range 8,
493 each contain 640 acres by Government survey, being a full section.

In laying out a township, that is, what is called a Congressional township, when it is full there are thirty-six sections in it, six miles square or thirty-six miles in the section.

Commencing in the northeast corner, the sections run west, to six, then seven below it, and then east to twelve, and so alternate to the 36th, and 36 is the southwest corner. If the township is not full, so that some of the sections in it will not contain the 640 acres, if it is short north and south, the fractional sections will appear along the north line of the
494 township. And if the township is short east and west the fractional lines will appear along the west tier. The sections on the east side of a township south of Section 1 will be full, if there is area enough to make them full; and the first one to be made full is section thirty-six and the next one running north and south, twenty-five.

For instance, here in Township 35, Range 9, I notice the acres given on the top here of sections there, Section 1, 640A, Section 2 640A, Section 3 640A, Section 4 640A, Section 5 640A, and when you come to Section 6 the acreage is given as 563.96. The excess or the deficiency in surveying the township is thrown into the west tier of sections, east and west. In this case there seems to be a deficiency. So that the whole tier of sections on the west side of that township—is a
495 fractional tier.

Aside from the last one or two questions wherein I have been shown an illustration of what I have said, my answers have been made and are concerning the map that is marked, "McCullough Exhibit One," and the one which was before me when the last three answers were made is marked
496 "McCullough Exhibit 1A" (Atlas page 3914), counsel for complainant explaining that these two maps are iden-

tical and both were certified to by Mr. McCullough, but Mr. Ezra Williams has delineated upon there a lot of loose material that has come out in the other evidence, upon one of them,—by "loose material" meaning material not delineated with any of the rest of the material until Mr. Williams delineated it upon this.

The reason why the surveyors made the difference in
497 this particular section twenty-five, giving 160 acres to the northeast quarter of the section and the lessor amount to the other three-quarters of Section 25,—because the section is a fractional section, being fractional on account of the river running through it, the meander of the river running through it and the fractional parts, the areas constitute, as I have said before, the lines within the section line and the meander line. These figures, in the different fractional quarter sections of Section 25, Township 34, Range 8 East, indicate the area of any acres of land within the meander line of those several quarters. Section 25 is a
498 fractional section. It should be a full section according to Government surveys. The balance of the area that would make up the 640 acres of the section, not mentioned in these figures, indicating the several amounts in the several fractional quarters is to be found in the river and between the edges of the river and the meander line.

There is a little patch that has not been mentioned (indicating on plat), twenty-six acres, twenty acres and a fraction, there on the south, and the figures that have not been mentioned by anyone appearing; in the southeast corner.

The acreage shown on this map in the several quarter-sections of it, within the meander lines, are as follows: In the northeast quarter, 160 acres, in the northwest quarter
500 101.90 acres, in the southwest quarter 146.24, and in the southeast quarter, that part of it north of the Desplaines river and east of the Illinois 94.41 acres, and that portion of the southeast quarter of said section line, south of the Desplaines river is 20.30 acres.

A-146.24 includes both the southwest fractional quarter and also this very small part of the northwest fractional quarter, which lies south of the river,—that is a common practice to include the fraction of the adjoining part; it takes in all of the south fraction there, half or quarter, we will call it, lying west or south of the river.

501 A different method was pursued in indicating the small area in the southeast quarter, that is 20.30, which lies

south of the junction of the two rivers, and that wasn't connected with the tract which is immediately below it, because that is in a different section.

From the field notes, and the McCullough Exhibit 1, the streams which are shown to be present in Section 25, Township 34, Range 8, have been meandered by the surveys of public lands of the United States.

502 There is not anything called for by the expression "meandered by the surveys of the public lands of the United States" which is absent from the field notes and this plat (McCullough Exhibit 1).

Thereupon McCullough Exhibit 1A and McCullough Exhibit 2A, were admitted in evidence, the court reserving the question of striking off certain annotations thereon, which plats appear in the Atlas, Vol. 2 of the Certificate of Evidence, at pages 3914, 16, respectively.

This map taken in connection with the field notes of the survey does show all facts placed on maps pertaining to a meander line made by the general government on this scale as a part of the survey of vacant public lands to be offered for sale.

The COURT. That is on the basis that this map has been admitted under this understanding.

It is possible to retrace the original meander line in Section 25, Township 34, Range 8, from these notes. I have retraced them by survey. I have a plat of my surveys on a larger scale. It is this which is now produced (Exhibiting plat to witness), bearing also the legend "Plat Survey of the North Fraction of Section 25, abbreviated, Township 34, N. R. 8-E, of the Third Principal Meridian, surveyed April 13th to 23rd, 1908, by Emil Rudolph and H. H. Bremer, Surveyors,"—which said map was received in evidence and

515 marked "Rudolph Exhibit 1" (Atlas, p. 3941).

Mr. Bremer is a surveyor who is associated with me in this survey. We together made this survey. The meander line in this section as run by me is indicated upon this

516 plat "Rudolph Exhibit 1." (Pointing to map.) The line drawn from A to B indicates the Government meander line from the Government field notes. It is a line made of dots and lines, in black, connected by circles when the line changes. Different courses and distances are shown beginning with South 28-E, one chain, and fifty links. Thence south—Well, I am going the wrong way according to the Government; we had better begin at the west end.

The point B is the west line of Section 25, and the meander post of the river. Beginning at that point the course is South 76 degrees east, 13 chains. This is the course that
517 is followed and delineated on this map. That is a true and correct delineation or platting of the Government meander line.

As to the area enclosed by the double line near the junction of the Desplaines and Kankakee, labeled here Desplaines river and mouth of Kankakee, and near that place there is a double line describing a rude trapezoid, labeled "Coffer Dam."

The coffer-dam is the lower part that has not been washed away, and the side, the east side shows stone and earth, or earth on the bottom, I think, and stone piled on top, enclosing the space as shown by this double line. There was a coffer-dam there when I made this survey. My survey correctly indicates the situation and dimension of the coffer-dam and the area included therein, by scales.

518 There is something more on the map. On the right hand end of the map, I see another representation which is marked on the scale 400 feet to the inch. This separate representation over here (indicating) represents the survey of the north fractional part of the section, or all that part of Section 25, lying northerly of the Desplaines and the Illinois river. That merely shows the section and is a sort of a key to the larger map, showing where the meanders have
519 been taken.

These lines on this, which I have described as meander lines, represent the position of the retraced meander line of the Government. Taking the original Government field notes as a basis, and for the test and actual survey that I have made, I would say that these meander lines had actually been run. I did go to Springfield and examine the originals of these field notes in the auditor's office. I compared these documents, these field notes, field note exhibits that are produced here, with the originals in the office of the auditor. These field notes exhibits that are produced here are true copies of the originals in the auditor's office.

520 The map is correctly drawn to a scale of 100 to the inch throughout that towpath bank there, from the water's edge on the one side to the water's edge on the other.

As to the conditions that I found,—the tow bank of the canal is the same throughout with the exception at various points along the line there were deposits of stone in places,

widening the tow bank of the canal, and in some places dumped on the river side of the canal. The tow bank or towpath is probably three or four feet above the water in the canal and as much as twenty feet, I should say above the river bank. I have taken the levels there, but I do not remember the exact figures.

The stone that had been placed there on the towpath, was a sort of a sandstone, bluish sandstone of a very poor
521 character, and seemed to scale off. I think the stone was perishable because it scaled off. If you took a piece up and dropped it, it would break in pieces almost like glass. It was just turned on loosely as though it had been dumped from a car and leveled off in a loose way. There was not anything in the nature of riprapping about it.

Thereupon it was agreed by counsel that the writing on the left under the head of "Areas" and on the right hand margin, that which is marked "Note" shall be omitted; and the balance of McCullough Exhibit II remain, and it is agreed that it is a correct representation of what it purports to be.

Cross-Examination.

522 I profess to know what rip-rapping means only from
523 a layman's standpoint of view. I have never examined any dictionary upon that point. I do not profess to be so acquainted with the meaning of that term as that I would set up my definition as against Webster's for instance, if Webster said loosely thrown in. As to how many pieces of that stone I did examine,—I saw it all along the line. I took it up to find out whether it was brittle and would break like glass probably a dozen pieces.

524 As to whether there are different strata there, some of which are soft and some of which are hard sandstone, —these I examined were all soft.

In the map that I have prepared, which is purporting to show the meander line, the line of the river shown there is the line of the river as it is now. I did not undertake to ascertain the line of the river before the drainage water was turned into the river. The line of the river that I have shown is the water line, the edge to which the water comes at the time I made the survey, as near as I could get it. The meander line does not conform to the edge of the water. A meander line in its nature can conform to the edge of the water, at

only very few places, perhaps; it may touch,—as a matter of fact a meander line is ascertained and determined by running straight lines between points shown by the field notes,
525 so that it does not conform to the line of the river precisely. I said in direct examination the meander line of the river was indicated by the lines of the stream itself. Upon this map, McCullough Exhibit 1, the lines of the stream are not shown any differently. If the stream had not been meandered, the line of the stream would be just as it is now, so that there is nothing in the mere line of the stream itself to show that the river has ever been meandered.

526 The Du Page river is not meandered and the lines showing the borders of that stream are no different from the lines showing the borders of the Desplaines. These field notes take in the shoal of the Desplaines river from Section 25, Township 34, 8 to the north line of Township 38. That would be about the line of 39th street in the Town of Lyons, extended west to the Desplaines river.

527 I could as well draw a meander line from field notes up to the south line of Riverside as I have been able to down below. The section corners as shown upon that plat are the northwest corner of Section 25, stone, northwest corner of Section 25, 34, 8, as whether any of them correspond to the fence corners on the actual ground, I relocated the northeast corner of Section 25. I found nothing there in the way of a monument, nothing but old occupation fences. The southeast corner of Section 25 came in about the middle of the Illinois and Michigan Canal.

528 Well, take here on the upper left hand corner, the line running diagonally across, the Government measurement equals 5,313 feet. I made that measurement 5,333-4/10. It is not true that that line should be 5,280 feet. I relocated all those lines in Sections 24 and 25. I made a survey of the whole section, say 24, located all the occupation. Then I surveyed the whole of Section 25 in which this meander line is located, surveyed part of 36, also part of the section east of Section 24. My starting point when I first started in the survey was beginning at a stone at the northwest corner of Section 25. That was the first monument that I started from, that is a known monument. From there I measured north and across to the northwest corner of Section 24. I

did this in order to get a certain check on my lines by
529 taking in all of the occupation in these different sections, and in this way I was enabled to locate the section corners that were lost or that could not be found.

I have never seen a survey by the United States on which the meander lines of this river were actually extended. I don't know as any such map exists. I would be likely to know if it did. The Land Office of the United States for Illinois and Missouri was located at St. Louis. I never knew of any such land office being located in the State of Illinois.

You understood me correctly that I made an accurate survey of that coffer-dam, and that that portion of it re-
530 ferring to the coffer-dam actually represents it to a scale. We made the measurement.

Re-direct Examination.

Directing my attention to McCullough Exhibit 2, as to the subject which I was cross-examined about, on the east and west line between Township 38 and Township 39, in Range 12 a little to the west of the divisional line between Range 12 and Range 13, I can locate upon that line between Townships 38 and 39 the point up to which the river was meandered, according to the field notes, as far north as the north line of Section 1, Township 38, Range 12, to the asterisk
531 placed on that line, part of the exhibit (point to the asterisk). I have seen the government plat of the Desplaines river north of that point. I have got a copy of that. It is in the other room there. (Witness produces a plat.) The number of the section is Township 39, Range 12 East, that lies directly north of Section number one in Township 38, Range 12 East is Section 36, Township 39, Range 12. In this book which I might call plat book, the label here at the top of this page 12 is a plat of Township 39, north of the base line in Range 12 East of the third principal meridian, southeast of the old Indian Boundary line.

The line between Section 36 of this page 12 of this plat book is the same line as the north line of Section 1 in Township 38, Range 12. This wavy line that comes up through Section 36 on this page 12 is the Desplaines river. That is the same portion of the river which is indicated in the unplatted portion extending into the line on McCullough Exhibit
532 2. There are no differences in manner in which the river and the section are platted north of that line, and what

they are south of that line, as they are indicated. In the way in which the sections are treated by the surveyor the difference is that in the meandered part the areas are given in different quarter sections.

In the meandered Section 1, the northwest quarter is marked 165 acres; the northeast quarter 87 acres on the east of the river, and 42 acres on the west of the river; the southwest quarter marked 160 acres; the southeast quarter east of the river 88 acres, southeast quarter west of the river 25 acres. The section and range number is Section 1, Township 38 North, Range 12, east of the third principal meridian. The total area of that section as given on
533 McCullough Exhibit 2, for the west half of the section west of the river 392 acres; for the east part east of the river 177 acres. The area of Section 36 upon the plat which I have produced, lying directly north of that Section 1 is marked 640 acres; and the area given on the Section 35 to the left and 36, into which the line representing the river extends are marked in full sections, 640 acres,—so all the way up the river to the sections next to the top line.

The last two rows of section are abbreviated.

The north tier of sections in the township are the fractional sections, where the deficiency of the surplus in the township are accounted for.

In that portion of the river up the river from Section 1, Town 38 North, Range 12 East, the bed of the river is taken into account in giving the acreage of the sections and quarter sections, while below that away down the river from that it is not so taken.

Thereupon counsel for complainant read in evidence the two following certificates upon said page 12, referred to by witness:

534 "Surveyor's office, St. Louis, 31st of August, 1837. The above plat of township 39, north of the division line of range 12, east of the third principal meridian, southeast of the old Indian boundary line is a correct copy of the plat thereof, on file in this office. Dan Dinclan."

Underneath that:—"Department of the Interior. General land office, Washington, D. C., Sept. 6, 1895. I hereby certify that this photo lithographic is a true and literal exemplification of the township plat of survey to which it purports to relate now on file in this office. E. F. Burt, Acting Commission."

MR. EMIL RUDOLPH further testified:

536 McCullough Exhibit 2 begins at the south line of Township 36, where McCullough Exhibit 1 left off. It goes on up through Townships 36, 37 and 38, up to the north line of Township 38 in Range 13, between 12 and 13.
537 And the river crosses that line in Township 39, Range 12, on the line between 38 and 39 in Range 12.

Then McCullough Exhibit 1 and McCullough Exhibit 2 together exhibit the whole of the river Desplaines from the mouth running up toward the north line of Township 38, in Range 12 east.

With reference to Chicago that last point would be in what in the city is 39th street at its intersection with the Desplaines river,—that is, it is due west.

This McCullough Exhibit 2 goes right on across the portage, exhibiting Mud Lake, exhibiting the west fork of the south branch and the south branch of the Chicago river
538 to Lake Michigan.

Thereupon it was agreed that the label on the top of McCullough Exhibit 2 put there by the auditor together with the note, asterisk, "field notes of the meander survey show this point as the head of navigation, but the original plat shows no indication thereof,—on said exhibit should be struck off, together with the certificates, and the map admitted in evidence subject to the objection of the defendant that it was immaterial and irrelevant. Said map is shown in (Atlas, p. 3915).

MR. RUDOLPH further testifies:

McCullough 2-A begins where McCullough 1-A left off.
543 McCullough 2-A goes on up through Townships 37 and 38 up to the line between 38 and 39, showing the river all the way with the same label and note, and then extending on through Ranges 13 and 14, shows Mud Lake, the west fork of the south branch, the south branch and the Chicago river to Lake Michigan.

Then they—the two sets, one and two on one hand and 1-A and 2-A on the other, together, show the same things.

Du Page creek or river extends through Section 17, Township 34, Range 9, but the acreage is shown as 640 acres, or a full section.

When you come over to Section 7 and 8 in Township 34, Range 9, which are the west tier of sections, the east quarters through which the river itself runs are indicated
544 with 160 acres, or a full quarter section. But the west quarter of those sections are fractional, because they are in the west tier of sections of the township.

Section 5 in 34, 9, is 640 acres. I examined the field notes at Springfield in this matter a good many of them, not all of them, and there are not any field notes of meanders for Du Page river or creek such as I have produced for the Desplaines river.

Re-cross Examination.

On that map over yonder the Chicago river runs off in a fork to the west. What that is known as I don't know, unless it is the west fork of the south branch. There appears to be another fork running south, that is known as the
545 South Fork of the South Branch. Bubbly creek runs
546 into it. That is not Healy's Slough. Healy's Slough would be in Section 29. It would be in the northeast quarter of Section 29 and 39.

In Rudolph Exhibit 1, I show a number of blocks in yellow, contractor's quarters, engineer's office, those were frame buildings of the—recently put up, apparently used in connection with this work.

547 I found a suspension bridge across the canal also. That appears to have been recently put up in connection with this work. My answer applies to all the yellow blocks, all the rectangles shown here. That is my autograph attached to the exhibit there. That is Mr. Bremer's autograph below mine. That autography in the practice as a surveyor goes as a certificate of the correctness of the plat.

Q. Do you understand that it has any higher weight than your sworn testimony on the stand as to the correctness of the plat?

A. I don't know. I guess it has about equal weight.

548 HERMAN H. BREMER, a witness for complainant, testified as follows:

Direct Examination.

My name is H. H. Bremer. My first name is Herman H.; residence, Chicago; occupation, surveyor. I have been engaged in business as a surveyor about 15 years. My experience consists in relocating lines, establishing original subdivision lines, in laying out cemeteries, and in locating rivers, ponds and lakes, railroad work and farm work.

In my work as a surveyor I have necessarily become acquainted or am familiar with the field notes, plats and maps and the practice of the United States Government surveyors in charge of land surveys in Illinois, made by and under the direction of the surveyor's general.

Referring to those field note exhibits, I have made use of those field notes in making a survey.

549 In making this particular survey, Section 25, I was associated with Mr. Rudolph, who has just left the stand,—in making a survey of Section 25, Township 34, Range 8 east of the third principal meridian. This plat called Rudolph Exhibit 1, is a correct representation of that survey. This line which is shown on this plat between the letters A and B is a series of courses run for the purposes of determining the meanders of the Desplaines and Illinois rivers. The notes and courses are a copy of the records as furnished by me, and purport to be copies of the original Government survey. That is I used these field notes which are in the field note exhibit and laid this line out from those field notes.

Looking at this map which is labeled McCullough Exhibit 1, the meander of the river is indicated on the exhibit,

550 by a single line on either side of the river demarcating the line between land and water.

I see that the scale of that map is indicated as 40 chains to an inch; that is the same as two inches to a mile.

The indication of the meander line on that plat, McCullough Exhibit 1, is the one customarily used by surveyors of the United States in platting public lands for sale when they plat them on a scale of that size. It is the customary method of indicating the meander line of the stream. That

scale is the customary size of Government plats of survey of vacant lands for sale which I have ever seen.

This map, Exhibit 1, which is before me, together with the field notes in filed note Exhibit 1, 2 and 3 of the survey of the meander line of the Desplaines river in Section 25, Township 34, Range 8, ascertain or make certain the location of the meander line of the Desplaines river in that section.

I could from the field notes which describe these mean-
551 ders which appear in those exhibits and from this plat which is now before me find the meander line as located by them. These notes and plats make certain where the line is. I have by actual survey in the field from these notes located that line. It is correctly shown upon this plat, Rudolph Exhibit 1.

Taking the original Government field notes as a basis, I would say from actual survey that these lines had actually been run in the Government survey.

This map taken in connection with the field notes of the survey shows all that is placed on maps pertaining to the meander line according to the practice prevailing in the land office of the United States upon plats of public lands for sale made of that size.

We went down and made this survey between the 13th and the 20th of April, 1908.

552 As to the condition of the towpath bank between the canal and the Desplaines river along this strip here which extends up stream from the area enclosed with lines marked "coffer dam,"—I found that the towpath had been filled and also some stone taken and thrown along the side of the towpath widening the same. In other words the towpath had been graded.

The character of the stone which I saw used there was a poor grade of sandstone. It was perishable, of a perishable nature.

Q. I will ask you to state what the effect up that stone would be of causing a dam to be thrown across the river, a permanent dam at the point where the coffer dam is indicated, and a flowing of the water up against the towpath bank as graded and filled in the manner you have described.

553 Counsel for defendant objected to that as incompetent, immaterial and because there had been no foundation laid for it.

Whereupon after argument the court sustained the objection and ruled:

The COURT. You may go into the question of what has been done down there.

COUNSEL FOR DEFENDANT. I will modify the question.

Q. Just describe to the court the form of construction which you found existing on this towpath bank in this area where the towpath bank is indicated as being about 70 and less than 70 feet wide between the river on one side and the canal on the other.

COUNSEL FOR DEFENDANT. I object to that on the ground that it has not been shown by any evidence offered yet that that work has been completed at that point.

Thereupon the witness was asked the following question:

554 Q. Mr. Bremer, you may state what the effect of the creation of the pool by means of a fixed dam and power house built in the bed of the river across the Desplaines river near its mouth at the point where you have located the cofferdam would be, what the effect of this pool and of the waves and water and frost and storms and floods upon the pool as bounded by the towpath for the 1,500 to 2,000 feet north, upstream from the dam, would be?

COUNSEL FOR COMPLAINANT. Just a moment, Mr. Starr: I think you used the word "Pool" when you meant towpath bank in that question.

COUNSEL FOR COMPLAINANT. Yes.

COUNSEL FOR COMPLAINANT. What would be the effect upon the towpath bank, I think the question should be.

COUNSEL FOR COMPLAINANT. Yes,—what would be the effect on the towpath bank for 1,500 to 2,000 feet upstream, from the dam, of the erection of this dam and the creation of this pool under the action of the water, the elements, floods, storms and frost?

555 To which question the counsel for defendant objected and thereupon the court ruled as follows:

The COURT. Well, I will let you frame it yourself, but I will sustain the objection to the question as put because of the element not being present that the bank is to be protected in some way. I appreciate the force of what Mr. Reeves said yesterday, that they might spend ten million dollars, or whatever the sum named was, in building up a slope wall, a solid wall of concrete all along this whole place, and render it perfectly safe and that it would not be the thing that they

are going to do, or that they are required to do under their contract.

556 Thereupon counsel for defendant further objected on the ground that no foundation had been laid to show the witness' qualifications. Said objection was sustained and thereupon the witness testified as follows:

557 My experience in the matter of planning, respecting hydraulic work, dams and power houses, and so forth,—I have planned dams, at least two, and have made a study of hydraulics.

558 *Cross-Examination.*

I planned two dams, one of them has been erected at Neodesha, Nebraska, a dam about 12 feet in height and about 800 feet long. I was not in charge of the erection, I drew the plans for it. I did not superintend the erection and I was not present and did not observe it at any time after it was erected. I never superintended the erection of any dam. I never worked practically upon the erection of any dam. I

559 myself have observed on the ground the action of waters upon dams at different places,—at Joliet particularly, I have seen the action of the water on the dam there, the bear trap dam, and at different places. The Joliet dam is built of concrete and there are no levees there to be washed at all. What I saw there was the water rushing on or over the concrete. As to the action of the water upon any earth levee, I could not find anything there to illustrate it from personal experience, nor anywhere, from personal experience.

Thereupon the court ruled that the witness was not qualified.

560 As to describing the condition of the towpath, I found the towpath had been filled about two feet above its normal level with a sandstone shale, for a distance varying between 1,000 and 1,200 feet, either way from the site of the Economy Company's plant, proposed plant. This sandstone, in my opinion, is not—

Thereupon counsel for defendant objected and counsel for complainant was directed by the court to ascertain if witness was qualified to state what he knows about stone.

COUNSEL FOR COMPLAINANT. Q. Do you know the character of sandstone in reference to durability, are you acquainted with it? Have you had experience in the observation and use of it?

A. I have.
Q. And the specification of it as a material.
A. I have had observation as to the use and durability and kind of sandstone which I saw on the sill of the towpath and also the use of it for building purposes.
Q. Well, what was the character of this?

561 *Cross-Examination.*

I did not say that I had any particular experience in specifying sandstone for buildings. I do pretend to have knowledge other than that which the ordinary individual having no special opportunities for observation or means of observation has of the character of stone. I acquired it by a study of geology. As to what are the various kinds of sandstone, I knew it in a general way from the study of geology, and to ask me to specify the different stratification is almost beyond me now. It is fifteen years since I have studied geology. As to setting myself up as an expert on sandstone, from remembering what I have studied,—I have seen this particular kind of sandstone in different places, and this particular sand-
562 stone interested me while on this work of surveying this particular section on account of the shale, and the nodules that are found in it. I have seen sandstone similar to it underlying the coal mines in LaSalle County, in the northern portion as I recollect near Oglesby, and it struck me that it was peculiar that that stone should be used—

Counsel for Defendant. Now, I move to strike that out.
The Witness. This a general discussion.
The Court. Yes, that may be stricken out.
Witness further testified:
I saw this stone that is placed on top of the towpath down at the site of this proposed dam. I know what the effect of the elements, air and water, would be upon that stone,—which last statement was objected to by counsel for defendant, and witness on cross-examination stated that he had observed the effect of the elements on stone of this char-
562a acter very recently at the site of the proposed dam.

The standards to which I refer in my judgments on this stone is this stone itself in connection with stone of a similar kind, of similar appearance, which I have seen, on the mine dumps at Oglesby and Canley, Illinois; also at Bloomington

and Braidwood and Coal City, Wilmington and Sunflower,
563 and I have observed it for a period varying from one day to probably two months. I had a special reason for examining it. It was not a part of my duty to examine it and study it. It was a matter of casual interest. I was studying geology at that time. I was continuing my prior studies. I was working in the coal mines at that time and had a
564 good opportunity to study geology. I was studying geology seriously.

As to my meaning in saying that my study of geology was fifteen years back, as a part of my college course,—I meant to say that in my line of work a man never ceases to study. I have not made a serious study of geology since the day I left college.

Q. You have never observed the action of the elements upon stone laid or arranged as this stone is on this towpath, have you?

565 A. The stone is not laid.

The COURT. I am not going to accept testimony of this character.

Cross-Examination.

Turning to the map McCullough Exhibit 1, that map by itself shows the meander line of the Desplaines river.

On being asked "Could you take that map by itself and run the meander lines of the Desplaines river?" the witness replied, "No, sir."

Q. Then the map by itself does not show?

A. It shows the meander of the river as I take it.

566 I cannot from this map trace the meander lines as laid down in the field notes of the Government survey. There is nothing on this map by itself from which I can run the
567 meander lines of that river, because the field notes are an integral part of the survey and the map. They become a part of the map of necessity because the map was constructed of the field notes. The map is certified to as being constructed from the field notes; not particularly this map, but a Government map. There is not anything on that map from which I could run the meander lines of the Desplaines river, as I claim they were under the Government survey. That map alone, would convey no knowledge to any person as to where those meander lines ran, and when I said that there is a thin line each side of the river on this map, McCul-

lough Exhibit 1, which shows the meander line, I refer
568 simply to the line which marks the borders of the stream, the division between land and water, and that exists as well on unmeandered streams as on meandered streams, so that in that part of the Desplaines river there is nothing in the boundary itself different from the boundary of an unmeandered river, in this line dividing the water from the land that marks the meander. There is no other line which shows the meander line on that map. I testified that the meander was the dividing line between the water and the land. And the line that was run by the surveyor was simply a line that would in a general way define the sinuosity of the stream. I am using the term meander in a different sense from the term meander line. In my direct testimony when I said that this line marked the line between the land and the water, the meander line, I meant the meander. The meander line and meander are taken in a different sense in surveying work. I know of no map made by the United States Government on which the meander line is run and extended of the Desplaines river.

I stated on cross-examination that there was no map which would show the distance and courses as run by the surveyor, which would define that meander line on a map made on that scale.

It is true that in platting rivers under the survey by the general Government, that on maps of this scale where a river has been meandered, that the marginal line showing the river is regarded as the line representing the meander line, in a general way.

568 *Re-direct Examination.*

That means that in maps of this scale there is nothing showing the meander lines except the same sort of line that appears between water and land, whether the stream has been meandered or not. The stream itself as delineated, would
569 give a general indication as to where it had been meandered by distances or courses. There is nothing on that map which shows where it has been delineated, but in a general way the map shows that the stream has been meandered by distances and courses, and these distances and courses were laid down on a paper and from that the meander line is shown, or the border lines of that stream as shown are traced.

I can tell from that map without the knowledge of the
570 field notes from the map alone, that that stream has been meandered, or some other stream on that map has not been meandered, by reference to the sections and the figures given in the sections.

The fact of the acreage given in the quarter section in place of the 160 acres indicates to my mind that that was derived from an actual meandering of the stream,—partially; but on a meandered stream the rules of survey state that the surveyor shall measure to the stream and shall there cease his measurements; and then measure from the north line of the township and this division on that map by distances measured north of the township lines and south from the township lines given, leaving in this particular instance the north tier of sections full with the exception of the west section of that north tier. In other words they measured up from the south and measured down from the north. The distances of those
571 lines are stated on that map, but not the meander lines. And that is only done under Government rules where the river is one which has been meandered.

Re-cross Examination.

573 This surveying of the meander, whenever it was done or whatever was done, was done in consecutive order, practically at the same time, as a part of the same work. There is nothing on that map that would tell you if you were buying property bordering on the river where the meander line as to that particular property ran, nothing that would show its courses and distances.

574 EDGAR WILLIAMS, a witness for complainant, testified as follows:

Direct Examination.

My name is Edgar Williams, my business, civil engineer. I am on my own work a good deal of the time, and a great deal of the time with Mr. Cooley assisting on his work. I have been acquainted and working under Mr. Cooley twenty years. I was under him in the employ of the Sanitary District of Chicago as engineer.

On the map marked McCullough Exhibits 2-A, I made these inscriptions and marks and representations; beginning down
here at the lower left hand corner in Section 25, Town-
575 ship 37, Range 10 E., there was a the word Romeo. I
wrote that there and also the following. Goose Lake, the boundary of the Village of Emmetsburg, and its name, nothing else. Also the Keepotaw, an old subdivision of Lemont, the name of Lemont, and the name of the subdivision of Keepotaw, the sub of the southwest fraction of the west half of the southeast quarter of the south fraction of the northeast quarter of Section 20 and the color which indicates it. Then next, two weeks ago—I had better take these others first. Near the Sag, I put on the "Archer," and the "Pearson" additions to Desplaines, and its red color, and nothing else. I put on the name of Sag, and the Archer and Pearson additions. The name of Sag at that last place. At Willow Springs I put on the name of Willow Springs and of Spring Forest. At Summit I put on the name of Summit and the boundary and the red color. I put on the name of Lyons and
of Riverside; put on the name of Bridgeport; the ap-
576 proximate location of Marquette's cabin, 1674 to 1675, and
the house. The name of Bridgeport. I put on the coloring which marks the odd numbered sections along the river, Section 1, Section 11, Section 15, Section 25, Section 33, Section 5, Section 7, Section 1, Section 11, Section 15, Section 21, Section 19, Section 25, Section 35. That is to represent the sections of the canal lands on that McCullough Exhibit 2-A. I put on the borings in red, 46, 49, 47, 48, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, and 60. I took the location of those from the Marshall report of those borings.

I don't see anything else from these colored town sites that I have indicated. I had the certified copies of the plats before me when I put those on. They are correctly located.
These several geographical locations are correctly placed,
577 except I put on this, Mr. Cooley's location of Marquette's
cabin. My information on that was obtained exclusively from Mr. Cooley.

On McCullough Exhibit 1-A, I placed upon that map beginning at the top where it connects with the other, the boundary of west lot 4 and its name, and the color, red color. The boundary of lot 4 and its name, and the color. The location and the name of the penitentiary. The location of the Sanitary District gauge, and its name.

In Section 9 the location of the Economy Light & Power gauge and its name, at Dam No. 1. Then the name of Dam No. 1, and the location of the dam. The gauge No. 1 of the survey of 1883, the name and the location. The name and the location of the Jefferson street bridge. The name, color and boundary of the west Juliet subdivision or plat. The name, color and location and boundary of Juliet.

The name, boundary and location of the School Section Addition to the Town of Juliet on the west side of the river, and the name, boundary and color of the School Section Ad-
578 dition to Juliet on the east side of the river.

The name, boundary and color of the subdivision of Block 96 of the School Section Addition to Juliet.

The name and location of Gauge No. 4 of the survey of 1883.

The name and location of Haven's Dam.

The name and location of Brandon bridge.

The name, boundary and color of the Buffalo addition to the Buffalo plat.

The name, color and boundary of the Vienna plat.

The name of Lake Joliet. The name and location of gauge No. 3 of the survey of 1883.

The name of Treat's Island.

The name of Millsdale and the location.

The name and location of gauge No. 4 of the survey of 1883.

The name and location of the Sanitary District gauge under Smith's bridge.

The name and location of the United States gauge near Smith's bridge.

The name and location of Smith's bridge.

The name of Lake DuPage.

The name and location of the Sanitary District gauge a mile below the Smith bridge.

579 The name and location of the Sanitary District gauge a mile and half above the Kankakee river on the Desplaines river.

The name and location of the Sanitary District gauge half a mile above the Kankakee river on the Desplaines river.

The name, color and location of gauge No. 5 of the survey of 1883, a quarter of a mile above the Kankakee river on the Desplaines river.

The name and boundary of the plat and location of Beard's Part and the Handy Part of the Town of Kankakee.

The name and location of the Sanitary District gauge and

of the United States gauge in Section 27, Town 34 North, Range 8 East, two and a half miles below the Kankakee river.

Then I colored the canal lands in Town 36 North, Range 10 East, Section 3, Section 15, Section 27. In Town 35 North, Range 10 East, I colored canal lands, Section 3, Section 9.

I also wrote—put on the name of Joliet in that Section 9.

I colored Section 21, Section 19, Section 29 and 31, all in Town 35 North, Range 10 East.

In 35 North, Range 9 East, I colored Section 25, Section 35, Section 14, Section 11, Section 15, Section 21, Section 29, and Section 31; all in Town 34 North, Range 9 East.

580 In Town 34 North, Range 8 East I colored Section 25, all canal lands.

There is not anything else that I put on there on either of them. But for what I have enumerated McCullough Exhibit 2 and McCullough Exhibit 2-A are in the condition in which they came to me.

And thereupon it was agreed by counsel as follows:

It is conceded that McCullough Exhibit No. 2-A, which is the sheet counsel for complainant now holds, is the same as McCullough Exhibit 2, in so far as counsel for the defendants now know or believe; but they reserve the right to examine and verify it, and it may be considered as a duplicate unless they raise objection hereafter.

581 Counsel for defendant thereupon reserved their objection that there is no plat of this nature at Springfield, and further that the note "field-notes on the meander survey shows this point as head of navigation, but original plat shows no indication thereon, did not appear on the original at all.

582 Thereupon the court held that the same ruling would apply to Exhibit 2-A as previously applied to McCullough Exhibit 2, and the said note would be omitted, together with the note "location of Marquette's cabin."

583 And thereupon the balance of the map was admitted in evidence. (Atlas, p. 3916.)

586 *Cross-Examination.*

Q. Mr. Williams, did you locate the situation of these various gauges and bridges, and so on by yourself?

A. I did.

Q. There are some eleven passenger bridges and two rail-

road bridges over the river in the part shown by map, McCullough Exhibit A-1?

A. Yes.

COUNSEL FOR COMPLAINANT. I object to that, if your Honor please. Just a minute; I am not sure whether I understand Mr. Scott's question, whether he means to say—to ask the witness to count up the bridges which he has put here, and give the total of them, or whether he means that this existing situation is the situation in that territory at this time in fact. I do not know which the counsel means.

COUNSEL FOR DEFENDANT. Mr. Williams answered the question. What did you understand me to mean, Mr. Williams?

COUNSEL FOR COMPLAINANT. Read the question.

(Question read.)

COUNSEL FOR COMPLAINANT. Wait a minute, before that question is answered I want to know—

THE COURT. It has been answered, so it is proper not to ask what he understood, so long as it has been answered.

587 COUNSEL FOR COMPLAINANT. But before it goes any further I wish to interpose the objection now, if it means what in fact exists in this territory at this time, I object to it, because that is no part of the matter which was dealt with. The fact is, there were certain specific objects that had appeared in evidence in various ways which it seemed desirable to counsel for the State to have delineated and illustrated, so that the evidence would be illustrative, and we got this witness to make the illustrations. Now, if counsel is asking him whether there are not some other things that are not illustrated, I say it is not cross-examination of this witness now, and I object to the answer, and move that it be stricken out.

COUNSEL FOR DEFENDANT. As to that, it is quite important that an illustration shall illustrate the general subject matter it is intended to illustrate. Now, while it is true that there was evidence showing two bridges which appear here, there was also evidence showing eleven more bridges which do not appear here. While it is true that there was a dam shown here, it is also true that there were several more dams shown by the evidence at the time this was made. Now, I simply do not want any confusion on the part of the court, and I am asking the man who made this and located these obstructions, whether there were or not more of the same character

588 that do not appear on the map.

A. There were more bridges than are shown here. I only show those few bridges at Joliet and the Smith bridge.

We show Haven's Dam here, but as I understand that isn't in the river now. Dam No. 1. There is Dam No. 1.

Q. Well, you say Haven's Dam is not in the river. How many other dams were there not in the river at the time you made this that you did not show?

COUNSEL FOR COMPLAINANT. I object to that, if your honor please. Please repeat the question?

(Question read by the stenographer.)

589 COUNSEL FOR COMPLAINANT. I submit, if your honor please, it is not part of the proper cross-examination of a witness who comes here as an engineer to explain a draft or plat, which he has made, to ask him how many other things at any other time there has been that he has not shown. It is certainly not proper cross-examination.

The COURT. I should rather think that the cross-examination should be confined to getting at the purposes and the reasons why he showed it. If he did it simply because he was instructed to do it, why that ends it, so far as he is concerned.

COUNSEL FOR DEFENDANT. Well, it is the map or plat that is the significant thing, and not the witness, and when they put in a map it either ought to show the thing as it is or we ought to be permitted, it seems to me, to have the man who made it show that it does not show the thing itself.

The COURT. Yes, you may do it by showing how he came to put in certain things and why he omitted other things, and if it is simply because he put in the things he was instructed to put in, why, then you have got to go further with somebody else, not with him.

COUNSEL FOR DEFENDANT. First, I must establish that there were things he did not put in before I ask him why he did not put them in.

The COURT. Yes, but in a general way, not as to the details.

590 In addition to Haven's Dam, that I did not put on this plat, I think there was a dam at Treat's Island on the north side. I have never been down to Treat's Island, and what I know of it comes wholly from maps and profiles. I put on the work that I was directed to put on. I had recourse to the profile of 1866 and 1867 to get this location. I

591 have seen the profile, United States Government survey profile of 1867. I have worked on it in connection with this river a little.

Q. Didn't that show you a dam about where the Economy Dam is now being built?

A. I think it does.

COUNSEL FOR COMPLAINANT. I object to this as not the best evidence.

The COURT. He may answer.

594 COUNSEL FOR DEFENDANT. He has answered that he thinks it does. Were you instructed not to show them upon this map?

A. I had no instructions at all about that.

Q. No instructions as to it?

A. No, sir.

Q. Were your instructions simply that you should show the bridges that you do show specifically?

A. Yes, they gave a list and I put them on according to the list.

Q. They gave you a list of the things that they wished you to show on the map and you put them on?

595 A. That is two or three times, the first list did not cover all; they first wanted some things put on and then others.

Q. You were instructed to show and did not attempt to show the various structures of the same kind that appeared all the way down the river?

COUNSEL FOR COMPLAINANT. I object.

COUNSEL FOR DEFENDANT. As, for instance, you did not attempt to show all the bridges or all the dams that had or did exist?

The COURT. Read that question.

(Question read by the stenographer.)

COUNSEL FOR COMPLAINANT. I object to that, your honor.

A. No.

COUNSEL FOR COMPLAINANT. I submit, your honor, please, there is nothing intended there but an argument.

The COURT. I think he is entitled to the benefit of the argument.

596 Thereupon the said maps marked respectively McCullough Exhibit 1 and 1-A and McCullough Exhibit 2 and 2-A were then received in evidence. (McCullough Exhibit 1, Atlas p. 3913.)

597 HON. S. R. VAN SANT, a witness for complainant, testified as follows:

Direct Examination.

My name is S. R. Van Sant; I live at Minneapolis, Minnesota. That has been my home about two years; have lived in Minnesota 25 years. I was Governor of Minnesota at one time. I was first elected in 1900 and served in 1901 to 1905, the second time.

My home before I went to Minnesota was Davenport, Iowa, and Rock Island, Illinois. I am in the transportation business, principally on the Mississippi river. I have been in business connected with the navigation of the Mississippi river, actively and as an owner of steamboats since 1870.

598 Before that I was employed in a boat yard, building and repairing steamboats, and as a caulker on steamboats, at LeClaire, Iowa. It was formerly at Rock Island, Illinois, and was moved from Rock Island to LeClaire.

My father was in the business of manufacturing and repairing steamboats there for many, many years.

I have been licensed as a pilot and master upon the Mississippi river by the Federal Government. My first trips on the river were in 1857, when quite a small boy. I have been engaged continuously in the business of piloting, handling and operating steamboats upon the Mississippi river, or in the business of manufacturing and repairing steamboats continuously from that time up until the present. I was in the Civil War, of course, but I worked in the boat yard as a boy, with my father. Of course, I discontinued working while I was in the army. Barring the time I was in the Civil

599 war, 1861 to 1865, my life has been connected with navigation upon the Mississippi river continuously from 1857.

I am connected with a navigation company at this time, the Van Sant Navigation Company, and with the Carnival City Packet Company. Those companies own and operate ten steamboats on the Mississippi river at this time. In the course of my life on the river my companies have owned, I should say, thirty to forty boats.

I have made the trip on the Mississippi river, the Upper Mississippi, in the course of my business and duties which

I have described,—well that would be hard to tell exactly,—I suppose at least five hundred or a thousand trips. These steamboats on the Mississippi river make a dozen or more trips a season; quite frequently as many as twenty trips a season, 25 in some cases.

600 The trip would usually commence at LaCross, the rafting works. West Newton and the mouth of the Chippewa, Reeds Landing and Stillwater and Prescott. These boats that I am speaking of are tow boats, and they would go to all points on the river above St. Louis and to St. Louis occasionally. Those were Minnesota and Wisconsin points where we got our tows. The boats I was operating upon as pilot and master were engaged in the carrying of freight and passengers upon the river, in some instances, but not very much. They were mostly towboats, but we have carried excursions with them, and carried freight in some instances. But the principal business of the boats I personally operated on was towing, of course, and bringing lumber down the river to the points mentioned.

The boats that belonged to the companies with which I am connected were engaged in the business of transporting freight and passengers, and are.

In the early days they did not tow rafts by means of steamboats, they floated them with sweeps, with men on the cars. Sweeps are large paddles with an oar stem, a long stick you might call it, a stick of timber with an oar placed on, and they are hung on a pivot on the bow and stern of the raft, and the rafts are steered with these sweeps or oars. To operate those sweeps would require the efforts of twenty-five men, 12 or 14 at each end. It mainly depends upon the size of the raft. They were used principally in steering. These lumber rafts were largely put up in what we call cribs, tiered one course above the other, usually ten feet wide and thirty-two feet long. These were put in the rafts. Courses of plank timber or boats,—suppose you had a raft of ten courses, that would mean ten inches. Each course was called an inch. Twelve courses would be twelve inches deep. Six one inch—the boats would be equal to six inches of timber. Six inches of timber would be called six inches deep. And to make a 12-course raft then, if it was made of two-inch plank it would be only six layers of plank, but it would be called a 12-course raft.

The business of towing rafts by means of steamboats first came in on the Mississippi river about 1866 to 1867. It came

about—I don't know, because during the Civil War when men were so scarce, for they were in the army, they got a small class of boats and used the men only on the stern. They did not keep the men on the bow. I did in our boat yard manufacture boats for that service and install them in service in the '60s,—in 1869.

The first boat that I remember was a boat called the James Lyon. That was in 1857. Well, as I remember, she was a boat 160 to 170 feet long, and with a 32 or 36-foot beam. Her draft line would be about 26 to 30 inches. When I was on her she was engaged in taking corn in sacks from Fulton, a point on that river reached by rail to Minneapolis and St. Paul.
601 That was the customary form of traffic on the river at that time.

From Rock Island, where the boat yard was, up to the Minnesota points I have named, during the winter months we stopped navigation about the 15th of November and commenced again about the 1st of April. Then in certain seasons when the water was low, boats of heavy draft could not run. It would be perhaps two months, quite frequently, that navigation would be suspended. I am speaking of before the river was improved. It would be two or three months. It depends on the stage of the river. In some seasons it would be more, and in some less.

December, January, February, March,—and one-half of November, that is four and a half months that they would go out for the winter, and two months for low water in the summer, that would be six and a half months that there would be no navigation and five and a half when there would be navigation, when the low water interruption would be two months. The winter months we couldn't run at all, and quite frequently in those years during the season of low water it was impossible to navigate on account of bars and rapids and other obstructions when the water was low. The period, then, of actual navigation, taking the years as they run on an average, would be five or six, and in some cases seven months, not to exceed that.

The season of low water when the larger boats could not make the through trip, I would say, would be a couple of
602 months, it depends. Some seasons we would have a rainy, wet season, and they would run more. It is a question of the draft of the boats and the stage of water in the river. It is wholly governed by that. It may be more and may be less.

I have seen it more. In 1864 we couldn't run at all. That was known as the "Low Water Season." Navigation was practically suspended except for very light draft rafts and light draft crafts, practically the whole season.

The little boats could run from intermediate points, but what we called the big boats were through boats from St. Louis to St. Paul. And, let me state, too, if I may be permitted to do so; that at certain parts of the river the water would be lower than at others. That is, there would be more obstruction. For instance, the upper river would be low and some of the big boats would go up to certain points, and the little boats would then take their passengers and freight on above. That was quite a common occurrence.

603 Quite frequently the boats would go to Hastings, Minnesota. The river from Hastings up was a very bad piece of river. The water was low and the big boats could not go all the way and they would connect with the smaller boats, and still that would make the through trip. They would take passengers and freight up to St. Paul and then bring passengers and freight back to St. Louis. Hastings from St. Paul is thirty miles; LaCrosse from St. Louis, is—well, I can't tell exactly,—I think about 600 miles.

We had a boat in that business taking a transshipment from a large boat at Hastings and carrying it to St. Paul. It was called the "Cheever." It was a light boat, built purposely for low water navigation, very wide and with light power, in order to make her light draft. The draft of the "Cheever" was, oh, I should judge not to exceed 16 to 18 inches, empty.

604 A sternwheel boat, about which there was some discussion a moment ago,—always draws more at the stern than the bow, for the reason that the stern is built out beyond the bearing-up capacity of the hull. That makes it heavier at the stern and light at the bow, and frequently we would put 20 or 30 tons on the boat, and she would draw no more than when empty. That was true of the "Cheever." She would carry her fuel and passengers and likely a few tons of freight, on 18 inches of water. That was a sternwheel boat, and the bottom was flat. Her draft at the bow was less than at the stern.

The "Phil Sheckel," that used to be on the upper river, I remember her very well. The "Phil Sheckel" was 110 feet long with a 26 foot beam. Her draft wasn't over 14 or 15

inches of water, a sternwheeler. That boat was built to run up the Chippewa river. That was a very scanty stream of water. The water was very scanty, and she was built in connection with a lumber company to run up to LeClaire, and up to points on the Chippewa river to carry up men who floated the rafts down and the freight, kitchen, and so forth, and the men lived on the boat, and when they brought the raft down she took them back. They find 14 inches of water on the Chippewa, at certain stages of the year. Sometimes it would get so low that that boat could not run, because the river would pretty near go dry. But when there was a great rise on the river, sometimes five hundred million feet of lumber would come down that river in a year. They would sometimes have to wait with their lumber until a freshet or the rain came, and then they would go down to the Mississippi. I would just say I am familiar with this boat and I give the details because I afterwards owned her. We used her for several years on the Mississippi. In the towing of these
605 rafts we used her as what you would call a bowboat. A bowboat is put right across the bow of the raft, and she steers or directs the bow of the raft, and now instead of taking one raft we take two down the river, and this boat was used for that purpose. The big boat was behind and was the propelling power, but this bowboat was the steering boat and kept the raft off of islands and obstructions. It pointed the course. We used the "Sheckel" on the Mississippi river about four or five years. We sold her and she is now at Miami, Florida, engaged in the building of the railroad from Miami to the Keys. She went there with her own power. She crossed the Gulf and went there in safety,—down the Mississippi and into the Gulf, and 1,200 miles out into the ocean, the bay.

I remember a boat called the "Jeannette Robar," and I think there was a boat—I know more about the "Jeannette Robar," my father built her. It was a very light draft boat. She was built to run up the Minnesota river in her early days. She was about 150 feet long and 30 feet beam. Her draft was 18 to 20 inches; she was a very light draft boat. That boat was engaged in the transportation of freight on the Minnesota.

The condition of water on the Minnesota river differed, but it was very desirable in those days to have light draft boats that would navigate as long as they possibly could. This boat was built especially for that trade.

It was customary in the boat yards in the Mississippi in the periods when I was maintaining a boat yard, to build
606 boats that were especially adapted for these shallow tributaries. They did carry on successful commerce on them.

The "Des Moines Valley" I think was built at Rock Island. I remember of seeing the boat and know of her. She was on the Des Moines river in the early days. I am not very well acquainted with the Des Moines river.

I remember the "Black Hawk" very well. My father built the first "Black Hawk." She was a little boat built purposely to run up the Rock river, a light draft and small craft to run up the Rock river. She was 100 feet long, breadth twenty-two feet, draft about sixteen inches, a very light boat. There used to be draw-bridges on Rock river at that time. I should think she would carry 40 or 50 tons. She was a small boat.

607 I remember the "Enterprise" very well. She operated at one time. She was first operated on the Mississippi river below St. Paul, but she was afterwards taken around the Falls by land and operated above Minneapolis. They took her around on wheels, skids, blocks and tackle. They had to go seven miles by land with her. I mean, she navigated on the Mississippi above the Falls of St. Anthony. She was a very light draft boat. I don't remember her exact size, but I remember her as a very light draft boat, in the same class of boats as the "Cheever," if not lighter.

They used to be a type of craft used on the Mississippi called "wood boats." Those wood boats were flat-bottom boats with scow bows, made very light to go up the creeks and rivers and get wood and bring it out into the Mississippi, and propelled with poles. They are in use some yet.

I remember a boat called the "Silas Wright," very well. That boat was used on the Chippewa. The "Silas Wright" was built to operate on the Chippewa river, but they found that she was too heavy draft and so they built two hulls, put one on each side of her and rigidly fastened them to the boat to bring her up, and she successfully navigated the river there for years; at a depth of 12 or 14 or 16 inches of water, although she was originally built for a draft of 18 or 20 inches of water.

I remember the "Lady Van Sant." She is a light draft boat, 105 feet long and 24 feet wide; draft I would say
608 20 inches. She was what you would call a bowboat.

I remember the "Harriet." Her draft was not over 18

inches. She was in the same business, only she was two feet wider than the other boat; and was used on the Mississippi and these other tributaries where the rafts came from.

The "Keokuk," we just built her last year. She made her first trip this spring. That boat is 140 feet long and has a 30-foot beam. She draws, trimmed up, I would say 26 inches. I mean by trimmed up, carrying 20 tons. She would carry 20 tons on that depth.

As to the currents, the varying currents were, which I encountered on the Mississippi river,—well, there are places where it is much swifter than others. The Moline chain is on the Upper Rapids. We have very swift water on the Lower Rapids; but the swiftest water I know of is on the Moline Chain.

Cross-Examination.

As to being able to say what the velocity of these currents are, or of these rapids, without having measured them,
609 I think I would be a moderately fair judge. I have navigated them with others, and lived practically in the engineers office.

I never measured the current at any point. I am able to estimate the rapidity of the current by comparing it with other points. I stated the swiftest place on the river; I can judge that, can't I. As to how many miles per hour water runs at any particular place,—that would be more sometimes than at others. It would be more when the water is highest. There would be a greater volume to come down through the chain.

The COURT. The point is, how can you determine, Governor, unless you were an engineer and measured those things, what the actual velocity is?

A. I cannot accurately. I said I cannot.

Q. Even fairly accurately?

A. I could only judge by what our boats—the usual time they would make up stream, and the time they make going up stream in this swift current. I can estimate in that way how much, perhaps, it is swifter than at other points on the river.

COUNSEL FOR COMPLAINANT. I think if we have the geography, if a man knows the number of miles he is going to make and knows the number of hours it takes to make the trip, and then compares the velocities that he encounters on his way, those that are swifter and those that are slower, he

would have a standard by which, from long use, he could form a judgment.

The COURT. I don't think, for the purposes of a case like this, that that would be proper.

Van Sant,—Direct Exam.—Continued.

610 There has considerable work gone on in improving the Moline Chain. That work was instituted and carried on by the Government. I would just state now that they have built a canal so that we avoid going up stream through this swift water.

With the work of making some of these improvements,—our boats were engaged with the contractors, chartered to them, and were on that work almost constantly. The Government's engineer's office by which that work was carried on was at Rock Island; our office at that time was at LeClaire, just at the head of the Rapids, and this was the foot of the Rapids. The Rapids were about eighteen miles long, and we had a boatyard there at one end, and the Government office at the other. I was very familiar with it because we built their boats, their chisel-boats, built their dredge-boats, and chartered them steamboats, and was in constant communication with them.

Q. State whether or not in the requirements as communicated to you by Government engineers for the purpose of getting boats that would perform this work, the velocities were stated to you by the Government engineers.

COUNSEL FOR DEFENDANT. That is objected to.

The COURT. Sustained.

The WITNESS. Before these improvements were made, navigation was actually carried on up stream against this swift current. In certain stages of water, certain boats would have to warp over the chain, especially Moline Chain.

611 A boat would come up in to the chain in the swift water as fast as she could, she would be either anchored there or hold herself there with her prow, and they would put a coil of line and an anchor out in a yawl. They would go to the side where the current was not so swift and the would be water enough for the yawl or boat, and they would go up to this point and cast their anchor and drift right down to the line, as it is a very easy matter, and then they would put a line on the steam capstan and wind up the line, after the anchor was laid. That was a common practice in passing Moline Chains.

They used it until the Rapids were improved; well, from the time of the earliest navigation until say, 1868-9 or '70, when the first improvement in the channel was made.

COUNSEL FOR COMPLAINANT. Now, I will ask you, Governor, to take the case of a river, which for a period of three or five months each year, exclusive of the time it was frozen over and exclusive of the time of extreme low water, presenting a depth, which would range from fifteen inches to ten feet and upwards of water, and in a channel, which would range from 250 feet wide to a quarter of a mile wide, and which had a current which varied from almost an imperceptible current in some of the wide spots where it was a quarter of a mile wide and ten feet deep, to a current much of the way two and a half miles an hour, one or two places three and a half, one or two places five miles an hour, and one or two places seven and seven and a half miles an hour, the swiftest current in one place being in the shallow part, and in another instance where the water was somewhat deeper; a stream which had such course of sinuosities as appear on this McCullough Exhibit 1A, this map which is before you. It is the one that is marked McCullough 1A, and shows the course of the river from Lockport, Joliet, down to the mouth of the River Desplaines. That is a map that is drawn on a scale of two inches to the mile. I will ask you to state whether, in your judgment as a practical navigator, a stream possessing those qualifications would be a navigable stream.

612 COUNSEL FOR DEFENDANT. That is objected to. In the first place, the curves are a very important feature. It is impossible that a witness can know from a map two inches to a mile what the curves of the stream were. The general pronounced bends of the stream would be shown, but the curve from point to point would not be shown. It is objected to again because to state that it has certain spaces of practically a level character, no slope, and certain others with a fall of so much, without indicating within what limits that fall comes, and what the extent of the level is, gives no indication, it does not describe the river as the evidence shows it in this case, and from such a hypothetical question, no such judgment or knowledge of the river can be given to the witness that he can form a judgment on it. Secondly, that it assumes the widths of channels that have not been proved in this case. There are no such channels at the declivities and slopes as have been assumed in this question and they are not proved

in the case. Now, to say that the river has in some places no slope and in some other places a slope of so many feet to the mile—it may be twenty miles of slope and one mile of level. I submit the whole question is not one upon which an intelligent answer can be made.

COUNSEL FOR COMPLAINANT. If every word that counsel has stated is true, which we deny, but if every word of it was true, the question is proper as a hypothetical question. We have a right to show what it was.

The COURT. Read the question, please.

(Question read by reporter.)

COUNSEL FOR COMPLAINANT. I will add to that that in one place about a mile, where there is an island in the stream, the channel narrows up to one hundred feet and part of that narrow channel along the island narrows down to a little less than one hundred feet about sixty feet wide.

COUNSEL FOR DEFENDANT. There is one other objection that I wish to make in addition to this made by Mr. Scott, that is, that the answer calls for a conclusion upon the word "navigable." The question should be, whether the river in his judgment was capable of carrying commerce for useful purposes, whether boats could be taken up and down the river. We don't know what the witness understands by the word "navigable."

COUNSEL FOR COMPLAINANT. I will accept the last suggestion to the question and put it up a stream answering
613 these qualifications, if it would be such that boats carrying freight would be capable of being operated up and down the river.

The COURT. For commercial purposes?

COUNSEL FOR COMPLAINANT. For commercial purposes.

COUNSEL FOR DEFENDANT. The question is still objected to.

The COURT. Governor, do you believe you have sufficient data to give an intelligent answer to that question?

A. I think I have.

The COURT. You may answer it.

A. In my judgment it could.

COUNSEL FOR COMPLAINANT. Then I will ask the further question separately, in your judgment would or would not the stream possessing these qualifications be a navigable stream?

COUNSEL FOR DEFENDANT. That is objected to.

The COURT. I sustain that objection.

Cross-Examination.

616 I worked in the boat yard when I was 13 or 14 years old. That would be about the year 1856. I began to run on the river as a business as a boy. Those boats that I have testified about and give their draft, were usually light draft. A boat like the "Phil Sheckel," 110 feet long, could carry a certain number of tons without adding very much to her draft. The capacity of the "Sheckel" in tonnage, freight tonnage, I don't know; don't remember. Her draft when loaded to her capacity would be three feet and a half. That would be usually true of all those boats, those smaller boats I have mentioned. They are generally about four feet depth of hull, and you can load them down to six inches of the guards. It is a fact, that the effort was to build boats adapted to the small streams, so as to make them available for commerce, and wherever there was a river that could be used for commerce in some way or other, they built a boat to navigate it. In those early days they resorted to the rivers as a matter of course, if the river could be used, and they build some kind of a boat, if one were possible, to navigate every stream where commerce can be carried on.

These rapids at Rock Island, Moline—sometimes called Rock Island, I notice, and sometimes Moline by Mr. Starr or by me, and sometimes the Le Claire Rapids, I think they
617 are laid down in the Government report as Rock Island Rapids, extending from Le Claire to Rock Island, about fourteen and a half miles, and the fall in that distance is about I think twenty feet; I didn't measure this; that would be a fall of about 18 inches to the mile. I know of Major Ruffner, but I never was acquainted with him, and he wasn't there when I was about the Rapids.

It is always dangerous to pass the Rock Island Rapids. This improvement I spoke of I think was taken up about 1868 or '69. I don't remember whether the first work was done in 1852; it might have been. I know they were very difficult of navigation before any work was done on them, because we repaired the steamboats damaged on the rapids;
618 it was quite a frequent thing to have to repair steamboats.

The Mississippi river was nearly half a mile wide, I should say about that. Some places it was much narrower and some places a little wider. At Moline Chain it would not be

a quarter of a mile wide. That is Moline Chain, which is now shut off by the dams. When we are passing the rapid places like that in the river, we have to follow the channel; the channel there is quite narrow, but deep. The channel at the narrowest point is I think 200 feet wide. That has been excavated by the Government by mean of cofferdams.

As a navigator, without knowing the width of the channel where I was to determine whether it was navigable or not, and at the place where the velocity was the greatest, without knowing the width of the channel but knowing the velocity, I would be able to state whether or not the river at that point was navigable. If I know the depth of the water in warping, I would carry the cable and the anchor, a thousand or 1,200 feet. It depends on the length of the line, carrying it
619 along the side of the channel where it was not so swift.

The movement of the boat during the warping is as follows: They steer the boat just the same. They use her wheels but this helps the boat over. Her power does not quite overcome the current and they pull her up with the anchor. They usually try to get the anchor above the chain. If not, they lay it twice. They are supposed to pull in the channel. When I say such a river as described in the hypothetical question used by Mr. Starr, can be used for boats, I refer to light draft boats, I should judge 125 to thirty or forty feet in length. For useful commerce, the dimension of a boat would depend upon the commerce and the nature of the stream. If you want to build a boat of sufficient light draft to navigate the river to make it profitable, I say a boat without a cabin and a very little upper works, built with very light draft from the very start, you can make her so that she will draw not to exceed, say, about twelve inches of water; about one hundred and forty feet long; thirty feet wide, 26 to 30.

Q. Now, governor, will you please consider a river of the description which I will now state and tell me whether you think such a boat as you described could be successfully navigated on it; beginning at a point sixteen miles from its mouth. We are now coming down to the mouth on this part, and are going to consider whether it is navigable or not. No, we will begin higher up. We will begin at a point 20 miles from
620 its mouth; and in the first four and a half miles a fall of 42½ feet, in the next 5,500 feet a fall of nine feet; that is to say, one and eight-tenths feet per thousand; then the natural channel there being less than 100 feet in width in places; the

next stretch being 2,000 feet with a fall of 3.75 feet, there then being a level of 4½ miles, then a sharp curve and a fall of 5.5 feet in 2,000 feet and a channel 60 feet wide.

A. How deep?

Q. About 15 inches deep? I say channel 60 feet wide, I mean the entire river.

A. The whole water of the river goes through there.

Q. Fifteen inches deep, and as described in the evidence in this case, boulders protruding above the surface?

A. Yes, sir.

Q. Then a distance of two miles of comparatively level water, and then a fall of 3.2 feet in 2,000 feet, being 1.6 per 1,000 feet. Now, I will ask you to state whether a river of that description, without improvement of the channel, could be navigated for the purposes of useful commerce.

COUNSEL FOR COMPLAINANT. I object to that, if the court please.

The COURT. He may answer.

The WITNESS. You will have to state that question again.

(Question read by the reporter.)

Q. Before you answer the question, assume wherever I have said "channel," that I mean the width of the river, and not the width of the channel?

A. Now, let me ask a question. You say whether the river is narrowed up to 60 feet there are boulders protruding?

Q. Yes, sir?

A. How close together or how many boulders are there?

Q. They are so close together, according to the evidence here, that a canoe has to dodge to get through them.

COUNSEL FOR COMPLAINANT. There is nothing in this case on either side, in my judgment, to hypothecate that question on, but I will not object.

The COURT. I cannot judge what the defendant's case is going to be, but they have a right to put your hypothetical questions.

COUNSEL FOR DEFENDANT. But, your Honor has a good memory and Mr. Clements, their witness, last night testified as to boulders.

621 COUNSEL FOR COMPLAINANT. Not in the way you say.

The WITNESS. Now, I want to be right on this. Now, what is the fall in the first 5,500 feet?

COUNSEL FOR DEFENDANT. That is not first, but in 5,500 feet the fall is nine feet.

The WITNESS. What is the first 42 feet?

COUNSEL FOR DEFENDANT. That is a fall of 42½ feet in five miles, a little less than five miles, as a matter of fact.

A. Well, if that stream where the 60-foot channel is—

Q. 60-foot river.

A. Sixty-foot river has boulders sticking up, so that a canoe only can dodge them, why, it could not be navigable. I would say that in my judgment. That is answering the question on those suppositions. That is the point right there. If those boulders are sticking up there, so that it takes a canoe to dodge them, it would not be navigable for a steamboat. That is distinctly understood.

COUNSEL FOR DEFENDANT. Assuming now, for the purposes of this question, that the boulders were not there, and that it was sixty feet wide and fifteen inches deep.

A. Well, are the boulders there?

Q. Yes, sir, they are.

A. But I am asking a question.

Q. Yes, sir, they are there. People walk over them dry-shod in summer. But, assuming that they were not there and that that river is sixty feet wide and you have a fall of 2.78 feet per thousand feet. Can you take a steamboat by them, in its natural condition?

A. I could if the water was deep enough.

Q. I said, fifteen inches of water.

A. I think it could be done.

Q. For the purposes of profitable commerce?

A. Oh, yes, sir.

Q. On 15 inches of water?

A. Oh, yes, sir.

Q. On such a boat as you have described?

A. On such a boat as I have described.

Q. The boat which you have described when it was loaded would rest on the bottom in that place?

A. I would not load it so heavy. I would load it according to the water. I have always done that.

622 Q. How would you go up that slope of ten feet a mile, in a 60-foot river, with a boat over 100 feet long?

A. I might have to warp.

Q. You would have to warp if you could do it at all, wouldn't you?

A. Well, I don't know.

Q. Governor, did you ever go up a river in a channel sixty feet wide at a slope—river 60 feet wide, at a slope of ten feet to the mile, and if so, where?

A. I never did; no, sir.

Q. The Rock Island rapids are about as bad as you care to navigate, aren't they?

A. I have never had a bit of trouble with our boats passing Moline Chain.

Q. But you helped to repair others?

A. I repaired others, and helped others run over it, but I built my boats to run them through the chain. And they always did it.

Q. You never heard of anybody building a boat to run up the Desplaines river?

A. No, sir.

Q. And you never heard of rivermen talking about the Desplaines river as a river of commerce, did you?

COUNSEL FOR COMPLAINANT. I object to that.

The COURT. Objection sustained.

The WITNESS. Shall I answer the question?

The COURT. No.

Q. Now, Governor, as a man who has spent his life in this business, taking such a river as I have described 20 miles long, with those natural difficulties and obstructions, and there being no river above affording profitable commerce, so as to make it worth while to overcome those obstructions, would you say that that 20 miles of river, in its natural condition would be an avenue for profitable commerce?

COUNSEL FOR DEFENDANT. Insert in the question "over-
623 coming those obstructions by methods of warping or cordelling, which have been described."

Counsel for complainant objecting on the ground that the hypothetical question was not a "fair one considering the actual facts in the case.

The WITNESS. I supposed your question would be along the same lines as the question which the other side proposed, and I answered it. Now, if the facts are as you state them, and upon the assumption that there is nothing on either bank or nothing at the head to come down the river, no freight or no people, it would not pay to navigate the river.

Assuming that at this particular point where the fall was 5.5 feet in 2,000 feet, that within that 2,000 feet there was a very sharp bend of the river, as to how that would affect
the ability to bring a boat up in that velocity, it would
626 make it more difficult, but we frequently turn very sharp
turns in the river. I never have done that, because I never navigated a river that had those questions to meet.

Going down a point like that I have described, in such a boat as you have described, we would have to what we call "check" around a place like that, back off and go ahead, back, back, just twist the boat around those points. We did that, we did it safely.

627 WILLIAM H. ZARLEY, a witness for the complainant, testified as follows:

My name is William H. Zarley. Residence, Joliet, Illinois. Am County Surveyor Will County. Have been surveyor for about four years and understand making measurements of lands, distances and things of that kind; know where
628 Treat's Island is in Desplaines river, was there yesterday afternoon. Went at the request of Mr. Starr and Mr. Reeves. Had with me Mr. O'Callahan and my assistant. I made measurements of the widths of the two channels of the Desplaines river, one on each side of Treat's Island. I mean the width of the water in each channel. I measure the width of each channel at the head of the island and at the foot of the island and at the narrowest points. I made these measurements of both channels. The right hand chan-
629 nel at the upper end of the island is 527 feet wide. At the foot of the island it was 209.3 feet. At the bridge
630 or central part of the island it was 145 feet. That is the width of the river. We considered the place at the bridge the narrowest point, it was 145 feet in width. The left hand channel at the head of the island was 276.6 feet and at the foot of the island 185.3 feet and at the narrowest point 128 feet. The water is now wider than in the normal stage of the river. At the head of the island in the right-hand
631 channel there is very little difference between the width of the river now and at its normal stage. Not very much difference between the width now and at the normal stage
632 at the foot of the island in the right-hand channel. In the middle or narrowest point of the right-hand channel it is now probably fifteen or twenty feet wider than at normal stage. In the left-hand channel at the head of the island
633 it is about what it is at the normal width. There is a swamp there with shallow water but we did not count that in the width of the river. At the foot of the island in the left-hand channel, where I said it was 185 feet yesterday, that,

too, represents about the normal flow but the river was
634 wider there yesterday than 185 feet. I meant the 185
feet was about the normal width at that point. The nar-
rowest place in the left-hand channel was 128 feet and that is
about the normal condition of the river.

Cross-Examination.

Am thirty years old. Lived in Joliet all my life. My
testimony as to the normal stage of the river refers to the
normal stage since the Drainage Canal water has been turned
into river.

635 *Redirect Examination.*

The right-hand channel of the river at the head of the
sland is some twenty-five to forty feet wider than it was in
ts normal condition prior to January 17, 1900, when the water
f the Drainage Canal was turned in, and that channel at
he foot of the island about twenty to twenty-five feet wider
nd at the narrowest point about fifteen feet wider. In the
eft-hand channel at the head of the island it is about twenty-
ve or thirty feet wider than the normal condition prior to
anuary 17, 1900. At the foot of the island the width is
bout the same and I would say that at the narrowest point
was about the same that it is now.

36 *Recross Examination.*

Have no personal knowledge as to the condition of the river
efore the water of the Illinois and Michigan Canal was
rned in in 1871. I never made measurements of the points
rior to yesterday. My comparison with the normal stage of
e river since the Drainage District turned in its water is an
timate of what I think the change was. I would not place
at estimate as against official surveys, if such have been
ade. Wherever I have said channel I mean the river itself.
Witness here indicates on map the location of the head of the
ght-hand channel.) There is another little island in the
right-hand channel between the head of Treat's Island and
37 the narrowest point given in my statement. I did not
measure the channel on either side of that little island.
hat little island is about 150 feet wide, I guess. The greatest

dimensions I gave were just at the point where you enter the channels on either side of the island at its head. At-
639 tention of witness called to page 25 of Ogle & Company's Plat Book of Will County, Illinois, 1893.
640 COUNSEL FOR DEFENDANT. You have put a line across the river marked "A," is that the point where you took the first measurement?

A. Yes, sir.

What appears on the map in the right-hand channel below the head of Treat's Island as a small island is there, as a matter of fact. I did not measure the stream on either side of that island. My measurement of the left-hand channel was taken at the point of entry to the channel, at the place where I have marked it "B." What appears to be a continuous
641 roadway across the right-hand channel indicates the place where the bridge is. My measurements at the foot of the island are marked "D" and "E." The place marked "F" on the right-hand channel is near the bridge and is the narrowest place. We did not follow the bank of the river on the east side yesterday. We measured the two points at the upper end of the island and we came down about the middle of the island across the mill race that is in the island and went down the west side of the island, and we came back
642 up the river on the west side. We crossed the race on the bridge. We saw the whole of the river on the west side; did not follow the river along the east side, and think I am prepared to say that those narrowest places were as a
643 matter of fact the narrowest places in the river. I think I can swear to this. I think I can swear that the river at the bridge is narrower than it is one hundred feet south of that.

Map of Treat's Island and vicinity surveyed in accordance with Act of Congress, August 11, 1880, under direction of W. L. Marshall, Corps of Engineers, U. S. Army, by L. L. Wheeler, U. S. Assistant Engineer, 1888 and 1889, which is identified and marked "Zarley 1"—I see what it is. I don't think I have had occasion to use it. (Witness not sure that he
644 has ever seen this map before.) With this map before me I think the point in the left-hand channel that we measured as the narrowest point is, in fact, the narrowest point. (Witness indicates point of bridge in left-hand channel.) This point marked "G." I marked the point of
645 the bridge in the right-hand channel as "H." The place where I took the measure at the head of the island is

marked "I." The points of measurement at the foot of the island are marked "K" and "L." The left-hand at the top was marked "J." The smaller island in the right-hand channel of the river I should say is somewhere in the neighborhood of 150 feet wide, I think about 800 feet long.

Q. You took no measurements of the size of the river from any point on that island to the shore or to the main island, did you?

A. No, sir.

646 Q. In what manner did you take the measurements?

A. We had a fixed base line along the island and triangulated across.

I suppose this map is drawn to scale. It took about an hour and a half to make these measurements. It has been raining most of the time for a couple of weeks. I should 647 say the river is up two or three feet above normal flow. Well, by normal flow I mean the ordinary flow in the summer. This is Sanitary District water added to the low water stage in the Desplaines river. This normal flow continues generally during the summer. When I say normal width 648 I mean width in the summer without any high water. There is very little difference between the width of the 650 right-hand channel at the head of the island now and its normal width. At the bridge in that channel the difference is possibly fifteen or twenty feet, I cannot tell within 651 a few feet. At the left-hand channel at the head of the island I would say that the measurement now would represent the normal width. A part of what is swampy on that side, we did not take into account, but the part we measured is just as wide in summer as it is now. At the foot of the island on the left-hand channel the measurement I gave would be the normal width, and the narrowest point would be the same too, and the east channel the narrowest point yesterday would be about normal condition since 1900. On the right-hand channel, the narrowest point the difference between normal condition and now would be about fifteen feet, the difference somewhere about fifteen or twenty feet.

653 The map marked "Zarley Exhibit 1" offered and received in evidence. (Atlas, p. 3949.)

At the point we have marked "G" the scale shows the river to be about 110 feet wide. The scale used is 300 feet to 654 the inch. Further up the stream where there is a point marked "71," the width shown by the scale is practically

the same as at the point marked "G." At the point you pointed out to me it is more than 100 feet, it is about 110 feet at that narrow place. On the east side of the small island, measuring, it shows about 75 feet. I marked the same
655 "M." Measuring from the map, the left-hand channel at the foot of the island is 115 feet. At the lower part of the island on left-hand channel, measuring from the map, it appears to be a little over 210 feet. That is where
656 we had 185 feet. Measuring again, I think that width to be about 215 feet, but it may not be exactly the same place I had it before. In the left-hand channel going down at the final tip of the island, close to that marked "Boring No. 17" it shows about 115 feet. At the point in the right-hand channel where we measured it yesterday as 527 feet, measuring by
657 the map, it shows 520 feet. In the left-hand channel where I gave the figures as 276.6 feet, measuring by the map, shows a little over 270 feet, about 275 feet. What I call normal is just from my general knowledge of the way the river is, not from measurements. What has been called the mill
658 race there is no connection with at the present time. I have heard it called the mill race, that is all I know about it. There has been no mill race there within my memory. The narrowest place of the right-hand channel on the right of the little island in that channel is about 90 feet, that is the point marked "M."

Further data introduced in evidence:

659 THE TEXT OF THE DEED OF CESSION OF THE NORTHWEST TERRITORY BY VIRGINIA TO THE GENERAL GOVERNMENT AND OF ALL ACTS OF CONGRESS OF THE UNITED STATES WHICH WERE INTRODUCED IN EVIDENCE AS FOLLOWS:

The deed of cession of the Northwest Territory from Virginia to the General Government dated March 1, 1774.

The ordinance adopted by the Congress of the United States under the Confederation on the 13th day of July, 1787, commonly called the Ordinance of 1787.

The Act of Congress of the United States entitled "An Act providing for the sale of the land of the United States in the territory northwest of the River Ohio and above the mouth of the Kentucky River," approved May 18, 1796.

The Act of Congress of the United States entitled "An Act to divide the territory of the United States northwest

of the Ohio River into two separate governments"; approved May 7, 1800.

The Act of Congress of the United States entitled, "An Act making provision for the disposal of the public land in Indiana Territory, and for other purposes," approved March 26, 1804.

The Act of the Congress of the United States entitled, "An Act dividing the Indiana Territory into two separate governments"; approved February 3, 1809, to U. S. Stats. at Large, 514.

The Act of the Congress of the United States entitled, "An Act to enable the People of Illinois to form a Constitution and State government and for the admission of such State into the Union on an equal footing with the original States"; approved April 18, 1818, 3 U. S. Stats. at Large, 428.

Joint resolution of the Senate and House of Representatives of the United States declaring the admission of the State of Illinois into the Union, adopted December 3, 1818.

STATUTES AND JOINT RESOLUTIONS OF THE GENERAL ASSEMBLY OF THE STATE OF ILLINOIS AS FOLLOWS:

660 Preamble of the Constitution of the State of Illinois adopted at Kaskaskia in Convention August 26, 1818, Laws of Illinois 1819, App., p. 1.

Act of the General Assembly of the State of Illinois entitled, "An Act to authorize the building of a bridge across the Desplaines River"; approved February 19, 1839.

Act of the General Assembly of the State of Illinois entitled, "An Act to amend the several laws in relation to the Illinois and Michigan Canal"; approved February 26, 1839.

Act of the General Assembly of the State of Illinois entitled, "An Act declaring the Desplaines River a navigable stream"; approved February 28, 1839.

Act of the General Assembly of the State of Illinois entitled "An Act to authorize Stephen Forbes to construct a dam across the Desplaines River in Cook County"; approved March 3, 1845.

Act of the General Assembly of the State of Illinois entitled "An Act authorizing the building of a bridge in Town-

ship 36 north, Range 10 east, in Will County"; approved February 12, 1849.

Act of the General Assembly of the State of Illinois entitled, "An Act to provide for the completion of the Illinois and Michigan Canal upon the plan adopted by the State in 1836"; approved February 16, 1865.

Act of the General Assembly of the State of Illinois entitled, "An Act to incorporate the Marseilles Land and Water Power Company"; approved March 9, 1867.

Act of the General Assembly of the State of Illinois entitled, "An Act to amend the charter of the Marseilles Land and Water Power Company in the County of La Salle"; approved March 27, 1869.

Act of the General Assembly of the State of Illinois entitled, "An Act to relieve the loan of the City of Chicago upon the Illinois and Michigan Canal and revenues by refunding to said city the amount expended by it in making the improvements contemplated by 'An Act to provide for the completion of the Illinois and Michigan Canal upon the plan adopted by the State in 1836,' approved February 16, 1865, together with the interest thereon as provided by Section 5 of said Act and to provide for issuing bonds therefor"; approved October 20, 1871.

Joint resolution of the House and Senate of the General Assembly of the State of Illinois of 1871 declaring the lease by the Board of Trustees of the Illinois and Michigan Canal to one Adam Smith to use and occupy a part of the 90-foot strip of the canal to be "not valid."

Joint resolution of the Senate and House of Representatives of the General Assembly of the State of Illinois of 1881 instructing the Attorney General to institute legal proceedings against the Kankakee River Improvement Company.

Act of the General Assembly of the State of Illinois entitled, "An Act to cede certain lots and dams in the Illinois River to the United States"; approved May 31, 1887.

Joint resolution of the Senate and House of Representatives of the General Assembly of the State of Illinois in reference to improvements of the Desplaines and Illinois Rivers"; adopted by the House May 27, 1889; concurred in by the Senate May 28, 1889.

Act of the General Assembly of the State of Illinois entitled, "An Act to create sanitary districts and to remove obstructions in the Desplaines and Illinois Rivers"; approved May 29, 1889.

661 Act of the General Assembly of the State of Illinois entitled, "An Act conferring police power upon the sanitary district of Chicago"; approved June 16, 1893.

Act of the General Assembly of the State of Illinois entitled, "An Act to amend Sections 12 and 20 of 'An Act to create sanitary districts and to remove obstructions in the Desplaines and Illinois Rivers'; approved May 29, 1889; in force July 1, 1889; approved June 10, 1895.

Act of the General Assembly of the State of Illinois entitled, "An Act to amend Sections 12 and 21 of 'An Act to create sanitary districts and to remove obstructions in the Desplaines and Illinois Rivers,' approved May 29, 1889, in force July 1, 1889, and amended by an Act in force July 1, 1895"; approved May 13, 1897.

Act of the General Assembly of the State of Illinois entitled, "An Act to amend 'An Act to create sanitary districts and to remove obstructions in the Desplaines and Illinois Rivers'; approved May 29, 1889, in force July 1, 1889"; approved May 10, 1901.

Act of the General Assembly of the State of Illinois entitled, 'An Act in relation to the Sanitary District of Chicago to enlarge the corporate limits of said district and to provide for the navigation of the channels created by such district and to construct dams, water wheels and other works necessary to develop and render available the power arising from the water passing through its channels, and to levy taxes therefor"; approved May 14, 1903.

Act of the General Assembly of the State of Illinois entitled, "An Act recognizing the Desplaines and Illinois Rivers as navigable streams, and to prevent obstructions placed therein, and to remove obstructions therein now existing"; approved December 6, 1907.

662 Thereupon the complainant offered and read in evidence the followng extracts from Reports of U. S. Engineers, an extract from Executive Document No. 16 of the House of Representatives, 40th Congress, First Session, entitled as follows:

"Survey of the Illinois River. Report of Brevet Gen. J. H. Wilson on the survey and examination of the Illinois River."

United States Engineers office, Des Moines and Rock Island Rapids Improvement and Illinois and Rock River Surveys. Davenport, Iowa, February 15, 1867.

"General: Having been charged by instructions from the engineering Department with the survey of the Illinois River from La Salle to its mouth, provided for by Act of Congress June 23, 1866, I have the honor to submit the following report." * * *

The supposition is that the survey of this river has immediately in view of its capacity for navigation to La Salle for the largest possible class of steamers that the river will admit when certain obstructions shall have been removed, and ultimately the determination of canal facilities with Lake Michigan and the solution of the question of an adequate supply of water from Lake Michigan as a reservoir for the canal and river during periods of low water. * * *

Subsequently by letter from the engineer department, dated January 8, 1867, I was directed to continue the examination of the Illinois River as far towards its source as there may be reason to believe that it is susceptible of improvement for the purposes of commerce and navigation.

Page 5:

There is no doubt that dredging alone, or at most, dredging and a feeder from the lake, can be made to answer every purpose in the improvement of the Illinois River, if it is to be considered as independent navigation of no other than local importance; but it must be remembered that this river is not the exclusive property of those living upon its banks. It forms already an important link in a network of river navigation extending, with its various branches, through seventeen States of the Union, and is destined at no distant day to become the great commercial highway between the productive States of the west and northwest and the markets of the world.

The Illinois River seems to have been specially designed by nature as the line by which the waters of Lake Michigan are to be connected with those of the Mississippi. Its two principal tributaries, the Desplaines and the Kankakee, rising, the one in Wisconsin, and the other in Indiana, run for many miles almost parallel with the western and southern lake shore, and are separated from the lake basin by a ridge of insignificant height and width. A moment's consideration will show that at no remote period the waters of the lake must have been carried off

by these streams as well as by the St. Lawrence. In fact it is the opinion of many old contractors who are well acquainted with the entire region, that a much more favorable location for a steamboat canal can be obtained from Bridgeport to Section 46 of the present canal, by following the line through Mud Lake; but let this result be as it may, the data herein contained, together with the existence of a canal of limited capacity already in operation, demonstrate beyond a doubt that the waters of the lake may be carried into the Illinois River through a navigable channel of any required dimensions, and at a cost which cannot be regarded as excessive when the objects to be obtained are duly considered.

Page 7:

"From the foregoing considerations, I have the honor to recommend the improvement of the Illinois River by a system of locks and dams, to be placed at such points between Lockport and Grafton as may be determined, after a full and careful survey, to be the most advan-
663 tageous and that navigation shall be extended to the harbor of Chicago by the enlargement of the Illinois and Michigan Canal, so as to adapt it to the use of the largest boats plying upon the Mississippi River."

Page 8:

"We can assert confidently, however, that the interests of commerce and the national defense require navigation between Lake Michigan and the Mississippi River for the largest river steamboats; that all the physical circumstances unite in making the line, by the way of the Illinois and Michigan Canal, and Illinois River as the only feasible route for such a work, and that, therefore, the enlargement of the canal and the improvement of the river by locks and dams as herein described, are demanded by considerations of economy as well as by the public welfare.

It is quite evident from what is already known, that steamboat navigation can be more cheaply provided between Lockport and La Salle by following the line of the river than by enlarging the canal. The State of Illinois has taken this matter in hand, and during its recent session of its Legislature has passed a law provided ultimately for the improvements recommended herein."

Page 11:

"In closing this report, I beg leave to invite the attention of the engineering department to the interesting report of my assistant, Mr. S. T. Abert, and a statement (marked Exhibit A) compiled by Col. H. A. Ulffers, civil engineer, assistant, giving an outline of the Canadian and New York canal systems."

And then follows MR. ABERT'S REPORT, page 21:

"The Desplaines Branch of the Illinois approaches to within twelve miles of the western shore of the lake, while the Kankakee, another branch of the same river, may be fifteen or twenty miles from the Great Calumet River, a tributary of the lake at its lower extremity. It is evident that any desired fall can be obtained, from the fact that the Desplaines, at Lockport, twenty-nine miles from the Chicago River, and 33 miles from the lake, is 20 feet below the surface of this great natural reservoir.

"The summit level of the Illinois and Michigan Canal between the last named points is being now cut down to the standard low-water level of the lake, for the purpose of draining the stagnant water of the Chicago River. It is estimated that this channel will discharge 24,000 cubic feet per minute, a quantity equal to two-thirds of the discharge of the Illinois River at Treetop bar during the low-water stage. This supply must have an ameliorating effect upon the worst navigable condition of the river."

Page 23:

"The practical conclusion from the foregoing statement is that a method of improvement by feeding from Lake Michigan as a reservoir is feasible between La Salle and Grafton, but above that point it will be necessary to employ locks and dams, and small sections of canal at Lockport, Joliet and Marseilles Rapids."

Page 28:

"It may not be out of place before closing this report to bring together a few facts which establish the superiority of the Illinois River as the route for a navigable connection between the lakes and the Mississippi River."

"The sources of the river being in a lower latitude than any of its rivals, this advantage increases as the river advances in its course, and, as a consequence, less obstruction to navigation and less damage to works of

improvement may be anticipated from the length of the winter and the breaking up of ice in the spring."

Page 29:

"A more important advantage belongs to the valley of the Illinois; upon it alone is a navigation practicable for the largest steamers, by the completion of which a union will be effected with the best navigable conditions of the western rivers, possessing an aggregate length in their main channels of 12,000 miles, exceeding in their collateral channels and tributaries 39,000 miles, and draining an area of 911,000 square miles with 90,300 square miles of lake surface, bearing a commerce of 413,000 tons burden."

664 The REPORT OF COLONEL J. N. MACOMB, "Reports upon transportation routes to the seaboard"; being Appendix CC of the Annual Report of the Chief of Engineers for 1875, p. 95, paragraph 2:

"This survey led to the conclusion that, on every account, the Hennepin Canal and Upper Illinois River, and enlarged canal from Joliet to Chicago, will afford the best through route for navigation between the Mississippi River and Lake Michigan that can be secured in this vicinity.

Paragraph 5:

"Indeed the Hennepin Canal, without the improvement of the Upper Illinois River and the enlargement of the eastern portion of the Illinois and Michigan Canal, would be useless as an outlet for the freights of the Upper Mississippi River; and a careful consideration of the subject has shown that the improvement of the Upper Illinois River, to accord with the scheme of improvement now in progress for its lower portion, is greatly to be preferred as a measure of economy in its broadest sense, rather than to undertake the enlarging of the western portion of the Illinois and Michigan Canal lying between Joliet and the Hennepin basin."

Paragraph 6:

"The improvement of the eastern portion of the Illinois and Michigan Canal involves the further cutting down of the summit-level and enlarging the water-way so as to afford an unfailing supply of water from Lake Michigan for the improved Illinois River."

665 THE REPORT OF MAJOR HANBURY, Chief of Engineers for 1887, part 3, Appendix II, on page 2122, paragraphs 2 and 3.

"The United States and the State of Illinois have long been committed to the project of opening a water communication between the Mississippi River and the northern lakes of capacity sufficient for the wants of commerce and for the exigencies of our national defense, should these ever arise." * * *

"The problem of connecting Lake Michigan with the Mississippi River by a commodious waterway, that could be used for commercial, military and naval purposes, has received attention from our most thoughtful statesmen from the day of Albert Gallatin to the present."

Page 2123:

"Before taking steps looking to the enlargement of the Illinois and Michigan Canal, in the interests of commerce, or as a military expedient, the advisability is suggested of ascertaining whether or not some route can be found from Joliet to Lake Michigan at a point where better facilities can be provided for handling the large commerce of this section. It is thought by some that a practical route exists between the valleys of the Desplaines and Calumet Rivers, along which a canal such as will accommodate the largest vessels using the improved Illinois River can be constructed, at a cost less than that estimated for the enlargement of the Illinois and Michigan Canal from Joliet to Chicago.

Before definitely locating that portion of this route which is to lie between Joliet and Lake Michigan, and which will involve in its construction the expenditure of a very considerable amount of money, every possible route should be examined, and every engineering phase of the problem should be considered. For these reasons I venture to respectfully suggest the advisability of calling the attention of Congress to the necessity of making available the sum of $10,000; as much thereof as may be necessary to be expended in examinations and surveys between the southern end of Lake Michigan and the Desplaines River at or near Joliet, Illinois, and on the preparation of plans and estimates of cost of constructing, along the most practical route so determined, a waterway having sufficient capacity to accommodate the same class

of vessels and commerce that the present improved condition of the Illinois River is designed to accommodate."

666 THE REPORT OF THE COMSTOCK BOARD OF 1886, found in this same volume on page 2125, the last paragraph:

"The report of the Board of Engineers shows that to enlarge the canal between Joliet and La Salle and provide for an increased navigation, equal to that contemplated by the improvements in progress on the Illinois River, between La Salle and its junction with the Mississippi, would require an expenditure of money greater than the cost of improving the river itself between Joliet and LaSalle. If such is the case, the river route should be improved as recommended."

667 THE REPORT OF THE CHIEF OF ENGINEERS, J. C. DUANE, found in this same volume on page 2127, paragraph 2:

"With reference to the conditions in this act of Cession regarding the enlargement of the canal, I would remark that the locks and dams that have been and are to be built by the United States below La Salle have been projected with a view to a steamboat navigation of the first class, and the project looks to a continuation of navigation upon the same scale between La Salle and Joliet, and since the cost of an enlargement of the canal between these points, would, it appears, be greater than that of the improvement of the river itself, a river route between those points should be adopted."

668 THE REPORT OF THE BOARD OF ENGINEERS, found in this same volume, on page 2129, paragraph 3:

"The waterway from Chicago to Grafton, on the Mississippi River is a most important one, and when completed there is little doubt that it will richly pay for itself in the reduction and regulation of freights."

669 THE SURVEY OF 1889 BY CAPTAIN W. L. MARSHALL, Executive Document No. 264, 51st Congress, 1st Session, commencing on page 12, at paragraph 2:

"Chicago River Route. The route proposed follows the Chicago River from its mouth, via its south branch and the Ogden Ditch to Summit, thence parallel to the present location of the Illinois and Michigan Canal, on lower ground, three miles more or less, where it enters the bed of the Desplaines River, which it practically

follows, cutting off bends to Sag Bridge, where it unites with the second or Sag Route."

Page 21, paragraph 7 of the same report:

"The route will be navigable at all stages below a stage corresponding to a discharge of from about 30,000 to 35,000 cubic feet per second, or under all ordinary conditions of the river, the extreme floods occurring at rare intervals, and then being of short duration."

670 BORINGS ALONG THE CHICAGO ROUTE FROM EXECUTIVE DOCUMENT NO. 264 51ST CONGRESS, 1ST SESSION, COMMENCING ON PAGE 69 AT BORING NO. 46.

THESE BORINGS WERE MADE TO DISCOVER THE DIFFERENT STRATA; FIRST THE WATER ON TOP, AND THEN THE STRATA DOWN THROUGH, PREPARATORY TO A DEEP WATER WAY; AND TO SHOW THE DEPTH OF WATER DOWN THIS RIVER IN 1889; THEREUPON READING AS FOLLOWS:

"Boring No. 46. Located in the Desplaines River 400 feet west and 3,400 feet north of the southeast corner of Section 32, Town 38 North, Range 12 East, Lyons Township, Cook County, Illinois,—depth of water 5.5 feet."

"Elevation of surface water 163.1 feet; commenced boring 11.30 A. M., June 25, 1889; completed boring 11:05 A. M. June 28, 1889.

"Boring No. 47. Located in the Desplaines River, 2,400 feet west and 1,600 feet north of the southeast corner of Section 6, Township 57 North, Range 12 East, Palos Township, Cook County, Illinois. Depth of water six feet. Boring made June 29, 1889.

"Boring No. 48. Located in Desplaines River, fifty feet from the north bank, two hundred feet west and twenty-two hundred feet north of the southeast corner of Section 6, Township 37 North, Range 12 East, Palos Township, Cook County. Depth of water nine feet. Boring made July 5, 1889.

"Boring No. 49. Located 1,300 feet west and twelve hundred feet north of the southeast corner of Section 32, Township 38 North, Range 12 East, in the Desplaines River, ten feet below the northwest pier and eighty feet from the northwest abutment of wagon bridge over the Desplaines River at Willow Springs, Lyons Township, Cook County, Illinois. Depth of water 3.5 feet. Boring made July 9th, 1889.

"Boring No. 50, located in the Desplaines River, one thousand feet east and twenty-five hundred feet south of the northwest corner of Section 5, Township 37 North, Range 12 East, Palos Township, Cook County, Illinois. Depth of water six feet. Made July 12th, 1889.

"Boring No. 51. Located in Desplaines River three hundred feet north and thirteen hundred feet east of the southwest corner of Section 6, Township 37 North, Range 12 East, Palos Township, Cook County, Illinois. Depth of water eight feet. Taken July 15, 1889.

"Boring No. 52. Located in Desplaines River, 100 feet south and 1,300 feet west of the northeast corner of Section 12, Township 37 North, Range 11 East, on the line between Downer's Grove Township, DuPage County, and Lemont Township, Cook County, Illinois. Depth of water 8.7 feet. Taken July 7, 1889.

"Boring No. 53. Located in the Desplaines River, 1,600 feet east and 1,400 feet south of the northwest corner of Section 12, Township 37 North, Range 11 East, on the line between DuPage and Cook Counties, Illinois. Depth of water five feet. Taken July 20th, 1889.

"Boring No. 54. Located in Desplaines River, 300 feet west and 2,300 feet north of the southeast corner of Section 11, Township 37 North, Range 11 East, on the line between DuPage and Cook Counties, Illinois. Depth of water 7.1 feet. Taken July 23, 1889.

"Boring No. 55. Located in Desplaines River, 2,400 feet west and 700 feet north of the northeast corner of Section 11, Township 37 North, Range 11 East, on the line between DuPage and Cook Counties, Illinois. Depth of water 7 feet. Taken July 25, 1889.

671 "Boring No. 56. Located in the Desplaines River, 400 feet south and 600 feet east of the northwest corner of Section 14, Township 37 North, Range 11 East, on the line between DuPage and Cook Counties, Illinois. Depth of water 8.5 feet. Taken July 25, 1889.

"Boring No. 57. Located in the Desplaines River, 1,800 feet south and 1,500 feet west of the northeast corner of Section 15, Township 37 North, Range 11 East, on the line between DuPage and Cook Counties, Illinois. Depth of water 8 feet. Taken July 30, 1889.

"Boring No. 58. Located in Desplaines River, 1,700 feet east and 2,200 feet north of the southwest corner of Section 15, Township 37 North, Range 11 East, on the line

between DuPage and Cook Counties, Illinois. Depth of water six feet. Taken July 30, 1889.

"Boring No. 59. Located in Desplaines River, 1,000 feet north and 500 feet west of the southeast corner of Section 16, Township 37 North, Range 11 East, on the line between DuPage and Cook Counties, Illinois. Depth of water 11.5 feet. Taken August 1, 1889.

"Boring No. 60. Located in the Desplaines river, 2,600 feet east and 50 feet north of the southwest corner of Section 16, Township 37 North, Range 11 East, on the line between DuPage and Cook Counties, Illinois. Depth of water 10.4 feet. Taken August 1, 1889."

672 LIST OF MERCHANTS' STEAMBOATS NAVIGATING ON THE MISSISSIPPI RIVER AND ITS TRIBUTARIES, SHOWING BOATS DRAWING THREE FEET OF WATER AND LESS AS FOLLOWS:

"No. 7, name Abner Gile, gross tonnage, 124.18, net tonnage 124.18, length of boat 110 feet, breadth 21 feet, depth 3 feet; where built, LeClaire, Iowa; home port, Galena, Illinois.

No. 13, name Advance, gross tonnage 82.83, net tonnage 59.79, length 70, breadth 18, depth two feet; where built, Madison, Arkansas; home port, Memphis, Tennessee.

No. 14, name Aggie, gross tonnage 88.57, net the same, length 92.4, breadth 20.4, depth 3 feet; where built, Manchester, Ohio; home port, Kansas City, Missouri.

No. 26, name Alpha, gross tonnage 56, net same, length 121 feet and three-tenths, breadth 21, depth 2.7; where built, Jefferson, Texas; home port, New Orleans, Louisiana.

No. 52, name Belgrade, gross tonnage 89.26, net the same, length 96 feet, breadth 18 feet, depth 2.5; where built, Vincennes, Indiana; home port, Evansville, Indiana.

No. 56, Belle Crooks, gross tonnage 78.43; net tonnage the same, length 91, breadth, 22, depth 3; where built, Jeffersonville, Indiana; home port, New Orleans, Louisiana.

No. 68, name Bessie Siler, gross tonnage 54.42, net tonnage 49.38, length 93, breadth 16, depth 3; where built, Harmar, Ohio; home port, Wheeling, West Virginia.

No. 78, name Bob Henry, gross tonnage 80.24, net 55.44, length 91.4, breadth 16.6, depth 2.4; where built, Charleston, W. Va.; home port, Wheeling, West Virginia.

No. 81, name Border City, gross tonnage 96.96, net tonnage 88.86, length 108, breadth 21, depth 2.5; where built, Fort Smith, Arkansas; home port, Memphis, Tennessee.

No. 82, name Boston, gross tonnage 70.77, net tonnage 57.10, length 65, breadth 16, depth 2.5; where built, Pittsburg, Pennsylvania; home port, Pittsburg, Pennsylvania.

No. 86, name Bright Star, gross tonnage 71.52, net tonnage 41.66, length 89.6, breadth 18.7, depth 2.8; where built, Calico Rock, Arkansas; home port, Memphis, Tennessee.

No. 88, name Buckeye, gross tonnage 69.62, net tonnage the same, length 102, breadth 16.4, depth 3; where built, Reed's Landing, Minnesota; home port, LaCrosse, Wisconsin.

No. 91, name Burnside, gross tonnage 100.45, net tonnage the same, length 114.6, breadth 20.4, depth 3; where built, Harmar, Ohio; home port, Wheeling, West Virginia.

No. 39, name C. C. Martin, gross tonnage 67.78, net tonnage the same, length 103.2, breadth 18.3, depth 3.9; where built, Harmar, Ohio; home port, Wheeling, West Virginia.

No. 103, name Caney Port, gross tonnage 83.90, net tonnage the same, length 126, breadth 19, depth 2; where built, Paducah, Kentucky; home port, New Orleans, Louisiana.

No. 108, name Carrie M. Kraft, gross tonnage 81.16, net tonnage the same, length 102, breadth 20, depth 3; where built, Parkersburg, West Virginia; home port, Memphis, Tennessee.

No. 135, name Clara, gross tonnage 60.95, net tonnage the same, length 87, breadth 14, depth 2.5; where built, Leon, West Virginia; home port, Wheeling, West Virginia.

No. 136, name Clara Belle, gross tonnage 71.48, net tonnage 56.66, length 100, breadth 18.8, depth 2; where built, Point Pleasant, W. Va.; home port, Wheeling, West Virginia.

673 No. 147, name Cora, gross tonnage 75.18, net tonnage the same, length 105, breadth 22, depth 2.8; where built, Pittsburg, Pennsylvania; home port, Cincinnati, Ohio.

No. 152, name Crescent, gross tonnage 82.93; net tonnage the same, length 106, breadth 18, depth 3; where built, Letart Falls, Ohio; home port, New Orleans, Louisiana.

No. 155, Crusader, gross tonnage 302.07, net tonnage 186.77, length 138.8, breadth 22.3, depth 2.9; where buit, Nashville, Tennessee; home port, Paducah, Kentucky.

No. 161, name D. T. Watson, gross tonnage 80.45, net tonnage 80.45, length 99, breadth 17, depth 2.6; where built, Pittsburg, Pennsylvania; home port, Pittsburg, Pennsylvania.

No. 182, name Dyersburg, gross tonnage 73.08, net tonnage the same, length 93, breadth 18.4, depth 3; where built, Dyersburg, Tennessee; home port, Memphis, Tennessee.

No. 186, E. T. Holman, gross tonnage 102.48, net tonnage 71.59, length 100, breadth 20, depth 3; where built, Nashville, Tennessee; home port, Paducah, Kentucky.

No. 199, name Eli, gross tonnage 140.25, net tonnage 120.25, length 106, breadth 21.5, depth 2.5; where built, Little Rock, Arkansas; home port, Memphis, Tennessee.

No. 201, name Ella, gross tonnage 284.70, net tonnage 184.70, length 148, breadth 28, depth 2.5; where built, Jeffersonville, Indiana; home port, Memphis, Tennessee.

No. 216, name Experiment, gross tonnage 62.35, net tonnage 34.99, length 106.5, breadth 16.2, depth 3; where built, Evansville, Indiana; home port, Evansville, Indiana.

No. 226, name Frank Preston, gross tonnage 61.14, net tonnage the same, length 103.5, breadth 19.3, depth 2.9; where built, Catlettsburg, Kentucky; home port, Cincinnati, Ohio.

No. 231, name Frederick, gross tonnage 82.51, net tonnage the same, length 96.4, breadth, 14.3, depth 3; where built, St. Louis, Mo.; home port, St. Louis, Mo.

No. 234, name C. B. Montieth, gross tonnage 69.03, net tonnage 62.91, length 103.4, breadth 18.2, depth 2; where built, Long Beach, West Virginia; home port, Wheeling, W. Va.

No. 341, name J. W. Mills, gross tonnage 86.98, net tonnage the same, length 109.7, breadth 22.2, depth 3; where built, Paducah, Kentucky; home port, Galena, Illinois.

No. 360, name Jimmie B., gross tonnage 58.32, net tonnage the same, length 97.3, breadth 20, depth 2.3; where built, Pt. Pleasant; home port, Vicksburg, Mississippi.

No. 390, name Josephine Spengler, gross tonnage 104.50, net tonnage the same, length 106, breadth 25, depth 3; where built, Vicksburg, Mississippi; home port, New Orleans, Louisiana.

No. 397, name Julian Gracey; gross tonnage 81.71, net

tonnage the same, length 100, breadth 22, depth 2.8; where built, Clarksville, Tennessee; home port, Paducah, Kentucky.

No. 417, name Leroy, gross tonnage 66.44, net tonnage 48.17, length 60, breadth 14, depth 2.7; where built, Greenville, Mississippi; home port, Memphis, Tennessee.

No. 420, name Lillian, gross tonnage 91.75, net tonnage the same, length 124.5, breadth 21.3, depth 3; where built, Ashland, Kentucky; home port, Wheeling, West Virginia.

No. 424, name Lion, gross tonnage, 71.96, net tonnage the same, length 100, breadth 15.6, depth 3; where built, Lyons, Iowa; home port, LaCrosse, Wisconsin.

No. 433, name Lizzie Bayliss, gross tonnage 110.05, net tonnage the same, length 117, breadth 21, depth 3; where built, Wellsville, Ohio; home port, Vicksburg, Mississippi.

674 No. 442, name Lucy Robertson, gross tonnage 103.84, net tonnage 81.89, length 95 feet, breadth 20.5, depth 2.9; where built, Johnsonville, Tennessee; home port, Paducah, Kentucky.

No. 463, name Mary Ruble, gross tonnage, 65.73, net tonnage the same, length 100, breadth 16.7, depth 3; where built, Carrsville, Kentucky; home port, Cincinnati, Ohio.

No. 464, Mary C. Cantwell, gross tonnage 64.73, net tonnage the same, length 100, breadth 28, depth 3; where built, Pittsburg, Pennsylvania; home port, Pittsburg, Pennsylvania.

No. 474, name Mike Davis, gross tonnage 112.28, net tonnage 78.92, length 96, breadth 17, depth 3; where built, Wheeling, W. Va.; home port, Paducah, Kentucky.

No. 479, name Minnie H.; gross tonnage 130.24, net tonnage the same, length 133, breadth 25, depth 3; where built, Reed's Landing, Minnesota; home port, St. Paul, Minnesota.

No. 510, name Novelty, gross tonnage 63.14, net tonnage 49.95, length 76.4, breadth 16.4, depth 3; where built Manchester, Ohio; home port, Vicksburg, Mississippi.

No. 513, name Octavia, gross tonnage 95.23, net tonnage 62.84, length 76.5, breadth 16.5, depth 3; where built, Greenville, Mississippi; home port, Memphis, Tennessee.

No. 516, name Olivette, gross tonnage 130.01, net tonnage 94.44, length 120, breadth 22, depth 3; where built, Harmar, Ohio; home port, Cincinnati, Ohio.

No. 537, name Phil Scheckel, gross tonnage 108, net tonnage the same, length 114, breadth 20.5, depth 3; where

built, Waubeck, Wisconsin; home port, La Crosse, Wisconsin.

No. 541, name Pinhook, gross tonnage 160.36, net tonnage 90.60, length 94, breadth 18, depth 3; where built, Chattanooga; home port, Chattanooga, Tennessee.

No. 546, name Prince, gross tonnage 107.88, net tonnage the same, length 120, breadth 21, depth 2.8; where built, Harmar, Ohio; home port, Wheeling, W. Va.

No. 550, name R. B. Kendall, gross tonnage 70, net tonnage 70, length 105, breadth 18, depth 3; where built, Pittsburg, Pennsylvania; home port, Pittsburg, Pennsylvania.

No. 558, name R. E. Philips, gross tonnage 84.06, net tonnage 79.60, length 110.8, breadth 20, depth 2.3; where built, Freedom, Pa.; home port, Wheeling, West Virginia.

No. 554, name R. L. Cobb, gross tonnage 365.33, net tonnage 204.56, length 145.1, breadth 28.5, depth 3; where built, Little Rock, Arkansas; home port, Memphis, Tennessee.

No. 560, name Reindeer, gross tonnage 56.36, net tonnage the same, length 103, breadth 19, depth 3; where built, Terre Haute, Indiana; home port, Louisvile, Kentucky.

No. 573, name Rob Roy, gross tonnage 100.02, net tonnage 84.63, length 119, breadth 19, depth 2.9; where built, Lafayette, Indiana; home port, Kansas City, Missouri.

No. 577, name Roy Lynds, gross tonnage 64.19, net tonnage the same, length 101, breadth 23, depth 3; where built, Jeffersonville, Indiana; home port, St. Joseph, Missouri.

No. 578, name Rozelle, gross tonnage 62.46, net tonnage 50.35, length 110, breadth 19, depth 3; where built, Charleston, W. Va.; home port, Wheeling, W. Va.

No. 581, name S. P. Pohn, gross tonnage 86.34, net tonnage 56.27, length 75, breadth 15.5, depth 3; where built, Lockhart's Landing, Arkansas; home port, Memphis, Tennessee.

No. 596, name Scout, gross tonnage 55.68, net tonnage the same, length 85, breadth 15, depth 2.8; where built, Freedom, Pennsylvania; home port, Pittsburg, Pennsylvania.

675 No. 638, name Tom Spurlock, gross tonnage 93.05, net tonnage 86.30, length 114.3, breadth 22.9; where built, Ashland, Kentucky; home port, Cincinnati, Ohio.

No. 642, name Two Brothers, gross tonnage 69.13, net tonnage 48.13, length 91.9, breadth 16, depth 2.5; where built, Pittsburg, Pennsylvania; home port, Pittsburg, Pennsylvania.

No. 643, name Undine, gross tonnage 72.90, net tonnage the same, length 112, breadth 30, depth 2; where built, Mound City, Illinois; home port, Kansas City, Missouri.

No. 651, name Vienna, gross tonnage 73.17, net the same, length 89.6, breadth 24, depth 2.3; where built, Plattsmouth, Nebraska; home port, St. Louis, Missouri.

No. 663, name W. L. Norton, gross tonnage 63.01, net tonnage 43.60, length 67.5, breadth 12, depth 3; where built, Lenoirs, Tennessee; home port, Chattanooga, Tennessee.

No. 665, name W. P. Bishop, gross tonnage, 69.09, net tonnage 48.09, length 93.9, breadth 16.5, depth 2.5; where built, Pittsburg, Pennsylvania; home port, Omaha, Nebraska.

No. 668, name Water Lilly, gross tonnage 141.17, net tonnage 89.96, length 112, breadth 21, depth 3; where built, Knoxville, Tennessee; home port, Chattanoga, Tennessee.

No. 678, name William Wagner, gross tonnage 52.25, net tonnage the same, length 100, breadth 17, depth 2; where built, Pittsburg, Pennsylvania; home port, Wheeling, West Virginia.

676 EXTRACTS FROM DOCUMENT NO. 263, HOUSE OF REPRESENTATIVES, 59TH CONGRESS, FIRST SESSION, REPORT UPON THE SURVEY, WITH PLANS AND ESTIMATES OF COST FOR A NAVIGABLE WATERWAY FOURTEEN FEET FROM LOCKPORT, ILLINOIS, BY WAY OF DESPLAINES AND ILLINOIS RIVERS, TO THE MOUTH OF SAID ILLINOIS RIVER, AND THENCE BY WAY OF THE MISSISSIPPI RIVER TO ST. LOUIS, MISSOURI, AND FOR A NAVIGABLE WATERWAY OF SEVEN AND EIGTH FEET DEPTH, RESPECTIVELY, FROM THE HEAD OF NAVIGATION OF ILLINOIS RIVER AT LA SALLE, ILLINOIS, THROUGH SAID RIVER TO OTTAWA, ILLINOIS. BY THE MISSISSIPPI RIVER COMMISSION COVERING THE SECTION BELOW THE MOUTH OF THE ILLINOIS RIVER AND BY A BOARD OF OFFICERS OF THE CORPS OF ENGINEERS, UNITED STATES ARMY, COVERING THE SECTION ABOVE THE MOUTH OF THE ILLINOIS RIVER, DECEMBER 19TH, 1905.

Page 40. "Velocity of current in the upper Illinois and lower Desplaines River during extreme high water. In

order to ascertain whether the currents which obtain in the upper Illinois and lower Desplaines Rivers during extreme high water would prohibit navigation at such times, velocities were computed at 16 points between Utica and Joliet for the highest water on record for each station. These results, which are shown in the following table, are based upon the following field measurements, and are entirely independent of any assumptions or theories. The high water elevations were taken from the high water line on our general profile, which were platted from actual gauge readings and reliable readings and reliable high water marks. The areas of the discharging sections were obtained by platting and computing the cross sections from soundings and stadia elevations taken in the field. * * *

The discharges for the sections one mile below the mouth of the Kankakee River, at the Kankakee cut-off, and 1/4 mile below the foot of Treat's Island, were obtained from discharge curves platted from measurements taken at Elgin, Joliet and Eastern Railroad bridge at the Kankakee cut-off, and 2,000 feet above Jackson Creek, respectively.

For the sections in Joliet and 1¾ miles below the Brandon bridge the discharges were derived from tables showing the discharge of the Drainage Canal and the Desplaines River, prepared for each day of the year by the Sanitary District of Chicago."

677 EXTRACTS FROM THE HOUSE DOCUMENT NO. 263, 59TH CONGRESS, FIRST SESSION, PAGES 45 AND 46, AS FOLLOWS:

"DAMS.

In order that there may be no damage inflicted on the bottom lands above the level of the crests of the proposed dams, the Board decided that all of the dams should be movable in character.

In accordance with your instructions, plans and estimates were prepared of dams of the Chanoine-wicket type. This form was adopted, not because it was necessarily the best that might be devised, but because this type has given satisfactory service on the Ohio and Kanawha Rivers, and because the estimates prepared on this basis will cover the cost of any other desirable type in

case later experience should prove that some other type is preferable.

The longest wickets now in use are less than 16 feet in length, and, as it is doubtful whether wickets longer than 18 feet can be handled conveniently, the latter length has been adopted as the maximum in the preparation of the plans and estimates.

The width of wickets is the standard width of 3 feet 9 inches, with 3-inch space between wickets. No provision has been made for service bridges, from which to operate the dams, as the experience at Davis Island Dam and Dam No. 6 on the Ohio River has demonstrated that the wickets can be safely and rapidly operated from boats or scows.

The design prepared by Mr. F. B. Maltby, United States assistant engineer, for the proposed dam across the Mississippi River at Alton, Ill., in connection with the extension of this project to St. Louis, Mo., has embodied in it the best American practice on Chanoine-wicket dams, and his design has been followed on this work.

On the Ohio River dams, which are now under construction, as well as on those in operation, Chanoine-wickets are used to close the channel, and bear-trap dams of various widths are used to control the water levels. On the Kanawha River, however, the water levels have been controlled by the Chanoine-wickets without the assistance of any other form of dam. The designs for the present projects follow the Kanawha River practice and make no provision for any other type than Chanoine-wickets. The entire width of the river is closed by a continuous line of Chanoine-wickets without any intermediate piers.

The cross section of the river was platted at each of the seven proposed dam sites, and from these cross sections were determined the thickness of the concrete base and the length of wicket for each of the nine proposed dams required under the different 14-foot projects.

The main portion of each abutment has been designed with a top width of 5 feet and a bottom width equal to about four-tenths of the height. The upper wing, which extends into the bank at right angles to the main portion, has a top width of 3 feet. These two parts of each abutment are built up to the same level as the lock walls

at the opposite end of the dam, or about 2 feet above high water. The lower wing swings the bank at an angle of 30 degrees with the main portion of the abutment and is stepped down from 4 to 14 feet, according to the height of the abutment and the level in the pool below the dam.

The location, principal elevations, and dimensions of the dams required under the different 14-foot projects are given in the following table:

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PRINCIPAL ELEVATIONS AND DIMENSIONS OF DAMS REQUIRED UNDER 14-FOOT PROJECTS.

No. of Dam.	Location.	Station.	Miles from Grafton.	Upper level at low-water crest of dam.	High water in 1904 or 1892.	Lower level at low water.
b1	Jackson street, Joliet.	1523.0	288.5	545	549.6	535.0
2	Foot of Treats Island.	1473.9	279.2	515	514.0	505.0
3	1½ miles below Kankakee river.	1434.1	271.6	505	510.0	494.0
4	At Marseilles.	1306.0	347.3	491	493.2	485.0
5	Head of Bulls Island.	1273.0	241.1	472	476.0	{466.0 {464.0
6	Head of Buffalo Rock.	1243.0	235.5	466	472.4	460.0
7	Lovers Leap.	1220.2	229.9	460	469.4	451.6
a7	Lovers Leap.	1220.2	229.9	464	469.4	451.6
8	Foot of Plum Island.	1213.8	231.1	460	468.6	451.2
a8	Foot of Plum Island.	1213.8	231.1	464	468.6	451.2

a Not printed.
b Dam No. 1 of the Economy Light and Power Co., Joliet, Ill.

PRINCIPAL ELEVATIONS AND DIMENSIONS OF DAMS REQUIRED UNDER 14-FOOT PROJECTS.

(Concluded.)

No. of Dam.	Head at low water.	Project.	Length of dam.	Elevation of bed rock.	Elevation of top of sill.	Length of wickets. Ft.	Length of wickets. In.	No. of map.
b1	10.0					0	0	57
2	10.0		600	498	503.8	12	0	56
3	11.0		840	483	488.2	18	0	55
4	6.0		830	478	481.7	10	0	52
5	6.0 8.0	B and D— A and C—	c750	455	460.8	12	0	52
6	6.0		500	443	449.2	18	0	
7	8.4	B	800	439	447.2	13	9	51
a7	12.4	A	800	439	447.2	18	0	51
8	8.8	D	600	438	443.2	18	0	51
a8	12.8	C	600	438	447.2	18	0	51

a Not printed.

b Dam No. 1 of the Economy Light and Power Co., Joliet, Ill.

c Section 470 feet long over north channel, and section 280 feet long over south channel."

679 PORTION OF REPORT OF THE INTERNAL IMPROVEMENT COMMISSION OF ILLINOIS, SECTION 8, "THE UPPER ILLINOIS," AS FOLLOWS:

"8. THE UPPER ILLINOIS.

"The Upper Illinois division covers 56.2 miles from the head of Lake Joliet at Brandons bridge, on the Desplaines River, to the head of the Henry pool at Utica bridge, though geographically, the Illinois River is formed by the union of the Desplaines and Kankakee Rivers, thirteen miles below Brandons bridge.

"The valley of erosion headed for Lake Michigan, is a case of arrested development, with declivities adjusted to the resisting rock stratification. Through the valley bottom, the modern stream has defined its course and a normal stream-bed has developed with true flood plains, through unfilled remnants of an older and greater stream-bed still exists, showing progressive shrinkage in the survey period. These old polls still aggregate a length of 22 miles and still carry a good depth of water—Lake Joliet, at 76.5 feet below Chicago datum (low water of 1847 in Lake Michigan), Lake DuPage at 90.2 feet, and Marseilles pool, originally above the Kickapoo reef, but now controlled by the dam, at 101.4 feet. All elevations refer to the low water of 1883.

"Between the Lakes Joliet, DuPage, are sharp pitches.

Treat's Island, and the dump of the DuPage River mouth, and against over Cincinnati limestone, below Lake DuPage and opposite the mouth of the Kankakee. The Marseilles dam is 25.8 miles below the mouth of the Kankakee, and 38.8 miles below Brandons bridge. It is at the head of a descent, on the coal measures, dropping some 28 feet in six miles, and at Ottawa, at the mouth of the Fox, the level is 132.2 feet below Chicago datum. From Marseilles to Utica bridge is 17.4 miles, the bed below the rapids in St. Peters sandstone, with a fall of about half a foot per mile to the lower end of Buffalo Rock; thence some 12 feet in four miles to Starved Rock, the declivity terminating on the water-line out-crop 0.3 miles above Utica bridge. The original low water elevation (1871) at this point, was approximately, 147 feet below Chicago datum; but the pool level produced by the dam at Henry, is 142.2 feet below Chicago datum (low water of 1883), with a declivity of some 0.6 feet on the following two and a half miles, the channel at the head of the pool having greatly silted in recent times.

"From the head of Lake Joliet to the head of the pool at Starved Rock, also the head of the alluvial valley of the lower Illinois is then, 55.9 miles, with an original fall of 70.5 feet, and a present fall of 4.8 feet less. The river throughout this distance has an average width of about 600 feet, generally subdivided by islands below Ottawa, and the bank heights vary from 8 to 23 feet. These banks are overflowed, more or less, in two years out of three.

"A flood record was kept at Morris by M. L. W. Claypool for the 56 years, 1834 to 1890. This shows twenty years in which the river was not out of banks, and fifty-three floods in the other 36 years. Of these seventeen exceeded 17 feet above low water, nineteen ranged from 14 to 17 feet, and seventeen ranged from 10 to 14 feet. The time out of banks averaged nine days for the flood years.

"Mr. Claypool's estimate of the overflowed lands above Marseilles Dam, in La Salle and Grundy Counties, is still the most satisfactory, and these lands cover 75 per cent. of the values between Joliet and Utica. The estimate is as follows:

"Under 10 feet	905 acres	11%
"From 10 to 14-15 feet	4,050 acres	52%
"14-15 to 18 feet	2,085 acres	27%
"18 to 20 feet	739 acres	10%
"Total	7,779 acres	100%

"(20 to 23 feet 390 acres).

"On a comparable basis the total overflowed lands in Will County were estimated at 1,000 acres, 250 of which are marginal lands of little value, and the remainder chiefly in Treat's Island, and the bottoms of DuPage River and Jackson Creek.

"The lands between Marseilles and Utica, for the equivalent stage of 20 feet at Morris, having been estimated at 3,050 acres, about two-thirds of the area being in the four miles below Buffalo Creek, and more affected by back water from the lower river than by head water floods. These lands are largely infertile.

"The value of all these lands was carefully estimated in 1890, as follows: 11,829 acres, $61[illegible], 00.

"Mr. Claypool's plane of reference happens to be an even hundred feet below Chicago datum, by the last survey, and 0.3 feet above the low water of 1883 at Morris bridge (built in 1856) and 0.66 above the low water of 1887, and less than a foot above the lowest known water. The higest known flood at Morris was 23 feet, and was observed by William Marquis, in March, 1830. The Claypool record begins with Mr. Claypool's arrival in Morris in March, 1834. In the thirty-four year (1834-67), thirteen floods occurred exceeding 17 feet, and seven of these ranged between 19.5 and 20.5 feet. The four notable floods in the twenty-two following years (1868-89), all ranged between 17 and 18 feet, the excessive height of 1883 being due to the breaking of the ice gorge and the great dam at Wilmington, and the loosing of the water stored in the 12-mile pool above. The two most notable floods since 1890 are, 1892 at 20.6 feet, and 1904 at 19.2 feet.

"Of the fifty-three floods, from 1834 to 1890, thirty-eight have occurred in the three months, February, March and April, the majority being identified with the spring break-up. The Kankakee usually breaks up and runs out before the ice moved at Morris and at other points in the upper Illinois, thus producing gorges and abnormal

stages of water. Such action has been less frequent since the shores and islands were cleared of their timber.

"The ice flood of February, 1887, was one of the four notable floods in the 1868-89 period, and its volume was carefully estimated from the heights on dams, as follows:

	Second-feet.
"Joliet, Desplaines River	5,575
"Wilmington, Kankakee River	25,225
"Marseilles, Illinois River	45,000
"Dayton, Fox River	13,680
"Ottawa (sum of the above)	58,680
"La Salle estimated	60,000

"The greatest flood at Joliet in thirty-three years prior to 1890, was estimated at 6,550 feet. The greatest flood at Wilmington, in the nineteen years prior to 1890 (ice gorge flood of 1883 excepted) was estimated at 35,600 second feet. The flood of 1887 was considered extraordinary for the Fox.

"Full measurements made at Morris after 1890, indicate the ice flood of 1887 was abnormally high by about two feet, or that the estimated volumes from the dams were short by 15 to 20 per cent. which is not probable.

"The flood of 20.6 feet at Morris, in May, 1892, is probably the greatest in the historic period, that of March, 1830, being no doubt abnormal from ice effects. This flood was measured by Charles L. Harrison, Assistant Engineer Sanitary District of Chicago, on May 6, and the volume found at 73,730 second feet. All the available data were reduced for the Sanitary District by James A. Seddon, in 1901, and the equivalents for Morris deducted as follows: (Claypool datum.)

"70,000 second feet	20.30 feet in height
"65 000 second feet	19.47 feet in height
"60,000 second feet	18.60 feet in height
"55,000 second feet	17.68 feet in height
"50,000 second feet	16.70 feet in height
"45,000 second feet	15.65 feet in height
"40,000 second feet	14.52 feet in height
"35,000 second feet	13.29 feet in height
"30,000 second feet	11.94 feet in height
"25,000 second feet	10.43 feet in height

"20,000 second feet..... 8.79 feet in height
"15,000 second feet..... 6.92 feet in height
"10,000 second feet..... 4.79 feet in height

"The basin areas of the Upper Illinois are as follows:

"Distance from Brandon's Bridge.

"Desplaines R., 1392 Sq. mi. "Kankakee R., 5148 sq. mi.	6,540 sq. mi.	13	mi.
"Morris.....	7,300 sq. mi.	22.7	mi.
"Marseilles.....	7,500 sq. mi.	38.8	mi.
"Ottawa (Fox R.).....	10,230 sq. mi.	46.2	mi.
"Utica Bridge.....	10,365 sq. mi.	56.2	mi.

"The extreme flood expectation in the Morris-Marseilles reach, is 70,000 second feet, taking the basin as normal. The flood of 1892 seems to have reached the limit for streams in this region of the country.

"The natural low water volume of the Illinois at Morris is nominal, not exceeding 250 to 350 second feet in 1887, practically at extreme low water, after allowing for canal water from Lake Michigan. A measurement of 456 second feet was made on the Kankakee River near its mouth, in September, 1867. Extreme low water at Wilmington for twelve years, 1871-83, was estimated at 420 second feet. The Desplaines River practically goes dry above Joliet. The Mazon was dry in 1867. The Fox measured 526 second feet in September, 1867. The canal authorities have measured a low water of 633 feet at La Salle.

"Assuming an ordinary low water volume of 1,000 second feet, the effect of introducing 10,000 second feet from Lake Michigan, at Morris, will be to raise the water 5.2 feet above the Claypool plane, and for 14,000 feet to 6.9 feet.

"Extreme floods may be assigned to two causes:—Heavy winter snow on a frozen ground surface, produces a great break-up rise, followed by extreme low water, as in 1867 and 1887. Again, long continued rains fill the ground and marshes to overflowing and the excess runs away in a great flood, as in the several great floods of May and June. In long continued dry periods the storage of marshes and ponds is exhausted, and as the subsoil is generally impermeable, extreme low water follows. In ordinary years, the floods are moderate and the low water volume well sustained.

"It is evident that any improvement for navigation should modify the regimen of the stream as greatly as possible, rather than as little as possible, as in all official projects. In adapting the Mohawk River (N. Y.) to a deepwater navigation, the Board of Engineers on Deep Waterways (1897-1900) projected a depth of 30 feet, even for a navigable limit of 21 feet, in order to bring flood velocity and slope within moderate limits. In like manner the capacity of the prism in the Upper Illinois is conditioned by flood volumes, without regard to the depth required for navigation. A project developed on such principles, not only provides a deep water channel, but substantially does away with overflows, and makes possible water-power development."

682 SENATE RESOLUTION NO. 26 OF THE 45TH GENERAL ASSEMBLY, STATE OF ILLINOIS, AS FOLLOWS:

"Senate Joint Resolution No. 26.

Resolved by the Senate, the House of Representatives concurring Herein, That there shall be submitted to the electors of this State at the next election of members of the General Assembly, a proposition to amend the constitution of this State, to-wit:

Resolved, That the separate section of the constitution of this State relating to the canal be amended to read as follows:

The Illinois and Michigan Canal, or other canal or waterway, owned by the State shall never be sold or leased until the specific proposition for the sale or lease thereof shall first have been submitted to a vote of the people of the State at a general election, and have been approved by a majority of all the votes polled at such election. The General Assembly shall never loan the credit of the State or make appropriations from the treasury thereof in aid of railroads or canals.

Provided, That any surplus earnings of any canal, waterway or water power may be appropriated or pledged for its enlargement, maintenance or extension; and,

Further Provided, That the General Assembly, by suitable legislation, provide for the construction of a deep waterway or canal from the present water power plant of the Sanitary District of Chicago, at or near Lockport, in the Township of Lockport, in the County of Will, to a

point in the Illinois River at or near Utica, which may be practical for a general plan and scheme of deep waterway along a route which may be deemed most advantageous for such plan of deep waterway; and for the erection, equipment and maintenance of power plants, locks, bridges, dams and appliances sufficient and suitable for the development and utilization of the water power thereof; and authorize the issue, from time to time, of bonds of this State in a total amount not to exceed twenty million dollars, which shall draw interest, payable semi-annually, at a rate not to exceed four per cent. per annum, the proceeds whereof may be applied as the General Assembly may provide in the construction of said waterway and in the creation, equipment and maintenance of said power plants, locks, bridges, dams and appliances.

All power development from said waterway may be leased in part or in whole, as the General Assembly may by law provide, but in the event of any lease being so executed, the rental specified therein for water power shall be subject to a revaluation each ten years of the term created and the income therefrom shall be paid into the treasury of the State.

Adopted by the Senate October 16, 1907."

683 EXTRACTS FROM HOUSE DOCUMENT NO. 264, HOUSE OF REPRESENTATIVES 51ST CONGRESS, FIRST SESSION, AS FOLLOWS:

Page 5:

"The least of the two channels estimated for from Lake Michigan to La Salle is eight feet in depth below the lowest recorded stage of water in Lake Michigan and the same depth below the crests of the dams at extreme low water in the Illinois and Desplaines Rivers. This least depth of eight feet corresponds to a depth of nearly ten feet (9 feet 10 inches) across the Chicago Divide, at the mean level of Lake Michigan and eight feet below the crests of the dams in the river portions of the route, no slope being allowed for. In the canals through the line by filling the levels, a depth of nearly ten feet can be carried whenever that depth exists in the rivers. These canals, by simply raising the embankment and lock walls, can be increased to twelve feet depth at small additional expense.

In the Desplaines and Illinois Rivers the practical depths of navigation after the construction of this channel will vary with the stage of the rivers. Reckoning only to the mid-stage, which is about two and a half feet above low water from Joliet to the mouth of the Kankakee and about eight feet above low water thence to La Salle (except at Marseilles, where it is four feet above the crest of the dam), there will be in the river portions of the route from Joliet to La Salle a navigable channel varying in depth from eight feet, when the discharge of the river is a minimum, to from ten to sixteen, feet at midstages." * * *

Page 6:

"A complete list of all steamboats of more than fifty tons register, navigating the Mississippi River and its tributaries, giving the dimensions of their hulls, names and tonnage, is herewith. This list is intended to embrace every steamboat, so-called, exceeding fifty tons register, that is contained in the last published (for the fiscal year ending June 30, 1888), list of 'Steam merchant vessels of the United States,' issued by the United States Government, navigating the Mississippi system of rivers from the Gulf of Mexico to their heads of navigation and includes all steamboats that at that time could have use for the proposed waterway. In this list there are but three with a greater depth of hold than nine feet. All of these have since been lost or broken up. Whether they have been replaced by smaller boats is not known." * * *

Page 7:

"The largest Mississippi River steamboat that now reaches the mouth of the Illinois River in length and draught, is the St. Paul packet, "St. Paul,' which is 300 feet long and 6 feet 2 inches depth of hold. This boat is 70 feet across her paddle-boxes and is a fair type of the largest Mississippi steamboat that will seek this route at extreme low water in the upper Illinois and Desplaines Rivers. Its net tonnage exceeds 800 tons, but larger boats exist that can use the route at extreme low water."

"A lockage at La Grange Lock is made once in eleven minutes. At this rate four lockages may possibly be made, passing as many boats, each way per hour.

Page 8:

"The extreme capacity of one of these locks which gov-

erns the capacity of the entire route as a means of transportation is, then, on the basis of boats like the St. Paul, 6,000 tons in round numbers, per hour, or 29,000,000 tons in round numbers, in 200 days, the shortest probable period of navigation, or one-half that amount if boats be moving in one direction only.

"The possible capacity of extreme low water of the channel 8 feet deep is thus more than sufficient for all probable demands upon it for many years to come. At higher stages, boats of twice the tonnage of the St. Paul could use the route." * * *

Page 12:

"CHICAGO RIVER ROUTE.

"The route proposed follows the Chicago River from its mouth, via its south branch to near Bridgeport, thence via the West Fork of the South Branch of the Ogden Ditch to Summit, thence parallel to the present location of the Illinois and Michigan Canal, on lower ground, 3 miles, more or less, where it enters the bed of the Desplaines River, which it practically follows, cutting off bends to Sag Bridge where it unites with the second or
684 Sag route.

"The route is preferred to the present location of the Illinois and Michigan Canal, or one adjacent to it.

"(1) Because it occupies lower ground, and the probable amount ofexcavation required is less, since the earth excavated from the old canal still remains as spoil banks to be removed.

"(2) Because the old canal is paralleled by a railroad on each side, and there is not sufficient room for the enlargement of the canal without condemning the railroad right of way and removing one or both of the tracks.

"(3) Because the present canal is the property of the State of Illinois and the conditions of transfer have not been accepted by the United States. These conditions are such that their acceptance would involve greater cost than a new right of way.

"(4) The Illinois and Michigan Canal is the main sewer of the City of Chicago, as well as a commercial highway, and cannot well be enlarged without either interfering seriously with its uses or at increased cost of work from delays due traffic upon the canal.

"(5) As a means of transportation and drainage it is

of advantage in the prosecution of the work parallel to it to maintain it in a serviceable condition during the construction of the larger canal.

"(6) For several miles of its course between Willow Springs and Lemont it is excavated in solid rock that the new route avoids so that the old canal location could not be followed in any event with advantage further than throughout the earth section."

"SAG OR CALUMET ROUTE.

"The proposed route is via Grand Calumet River to 108th street; thence via a cut-off through Lake Calumet, to its southwestern shore; thence by another cut-off, to the Little Calumet River; thence to Blue Island, thence nearly due west via, practically, the line of the old Calumet feeder, north of Lane's Island, to the junction of the two routes at Sag Bridge."

"PRACTICABILITY OF THE PROPOSED CHANNEL, DISCHARGE OF THE ILLINOIS RIVER, AND EFFECT OF DAMS IN THE BED OF THE ILLINOIS.

Page 20:

"The proposed channel from Lake Michigan to Lake Joliet is nearly entirely artificial; in other words, a canal. This canal, for short distances, enters the bed of the Desplaines River, and is subject to its floods throughout these short stretches. The maximum amount of this flood water to be provided for at long intervals, will probably not exceed 10,000 cubic feet per second under present conditions. The average spring freshets do not probably exceed from 3,000 to 5,000 cubic feet per second. The canal with its waste gates and weir at Lockport; the controllable sluice-gate on the dam at Joliet; the additional sluice-gates in the canal revetment below the dam and above the guard-lock at Joliet (not estimated for), taken in connection with the high retaining-walls and the allowable depth of overflow over the crest of the Joliet Dam, will safely pass this water.

"This part of the route, or the canal section, as designed, is, then, considered feasible and practicable, with the understanding that possibly a secure levee may be demanded from the dam at Joliet, along the left bank of

the Desplaines as far as to the flats below the Adams Dam,

Page 21:

to prevent overflow when the sluices at Joliet are opened to their full extent.

"The discharge over the dams above the mouth of Kankakee is not, in any case, likely to exceed from 16,000 to 23,000 cubic feet per second. Such discharge is contemplated in the constructions, and may be passed over the dams.

"There is, then, no engineering difficulty, or any apparent reason why the constructions proposed, with slight modifications that would not materially increase the estimates, will not satisfactorily subserve the purpose of a navigable channel as far as to the mouth of the Kankakee.

"Here, however, the conditions radically change. The low water discharge of the Illinois River, which below the mouth of the Kankakee and over the Marseilles Dam does not exceed 1,000 cubic feet per second, including the supply by the Illinois and Michigan Canal, increases at extreme floods, until, as indicated by the high-water marks above the crest of the Marseilles Dam, it reaches 63,000 cubic feet per second at Marseilles. This result is given by 'Francis' formula. If the velocity of approach
685 due a slope of 2 feet to the mile, as shown by high water marks for 5 miles above the Marseilles Dam, be considered, the extreme flood discharge over the crest of the dam at Marseilles would probably be estimated at about 70,000 cubic feet per second.

"The draining of the Kankakee marshes by a cut through the rock barrier at Momence, Ind., now contemplated will certainly not lessen the ratio of 70 to 1 between flood and lowwater stage, nor will the constant discharge into the Illinois River of from 300,000 to 600,000 cubic feet per minute, contemplated by the City of Chicago for drainage purposes, lessen the flood discharge, which determines the practicability of the route for all stages.

"The dams on that portion of the route are proposed to be built as high as the topography of the valley will warrant, without extensive permanent overflow of lands or without materially increasing damage by floods, and

the depths required, where not produced by these dams in the pools above them, secured by excavation.

"These dams have their crests from 10 to 18 feet or more below the high-water plane, and at the extreme flood stage will exercise no appreciable influence over the high-water levels, slopes, and velocities. If the river be not navigable now at flood stage over the reaches named below, it will not be navigable at flood stage after the construction of the proposed works, *i. e.*, from Lover's Leap to foot of Marseilles Canal, 14 miles, for 5 miles above Marseilles Dam, and for 3 miles below the mouth of the Kankakee, where the high-water slopes are excessive; in all, 22 miles out of the 43 miles that intervene between the mouth of the Kankakee and the last dam at Utica.

Page 21:

"The route will be navigable at all stages below a stage corresponding to a discharge of from about 30,000 to 35,000 cubic feet per second, or under all ordinary conditions of the river, the extreme floods, occurring at rare intervals, and then ebbing of short duration."

"A route navigable at all times and in all conditions of the river can be obtained in four days via the valley of the Illinois River;

"(1) By canaling past the 22 miles indicated, practically in the bed of the river, with embankment above high water mark.

"(2) By raising the dams, or by shortening the length of spillways, until the sectional area of discharge throughout the pools is much greater than the area of discharge over the dams, converting the pools into reservoirs.

"(3) By excavating and enlarging the cross sections of the pools until the same result is attained.

"(4) By constructing a lateral canal throughout the line.

Page 22:

"Any of the first three methods will involve a greater expense than would the 4th, or continuous canal from Joliet to LaSalle; the first method, because of the increased cost of the canal, with costly guard locks in connection with costly river improvement over the sections where slack water is retained; the second method, by increasing the damages by flowage of valuable lands, and by increasing the height and cost of dams and lock walls,

and the difficulty of securing the abutment and connections with the banks; and the third, by enormously increasing the amount and cost of excavation." * * *

"It must be understood, therefore, that the constructions proposed herein are considered to be adequate to create a navigable water-way in the bed of the Illinois River, below the mouth of the Kankakee, at all ordinary stages of the Illinois River, but that during the short and widely separated floods the route may be found impracticable to use over the reaches named herein. Attention is invited in this connection to the report of Mr. L. L. Wheeler, which contains a short mathematical discussion of this subject.

"The Kankakee River brings down large quantities of heavy sediment, which has been deposited in the deeply cut trough above the rock uplift at Marseilles, until that trough of unknown depth has been filled with gravel and sand nearly to the crest of the reef at Marseilles. Under the 14-foot project, and to a less extent the 8 foot project also, the material must be excavated to get the proper depth. The present condition of the bottom of the river exhibits doubtless, the state of equilibrium that has been established between the scouring action of floods and the capacity of the heavy deposit to maintain its position. The more this condition is disturbed, or the deeper the material is excavated and the current of the river reduced, the greater will be the deposit of heavy sediment
686 in the channel, gradually diminishing until this equilibrium is again restored.

"The Marseilles Dam will be, at high water, in practically the same condition as now, as it is proposed to get the two feet increased height of crest by a movable crest, which will be thrown down at floods. The dam below the mouth of the Kankakee and at Sugar Island will be drowned out, and practically the same condition will exist throughout the reach at high water as at present except in so far as the velocity and slope may be disturbed, however slightly, by this channel excavation. We may expect, therefore, a constant effort of the river to restore at least, its present condition by filling up the excavated channels.

"In the 8-foot project the excavation is comparatively light, but in the 14 foot project it is very heavy over this

section, and if the channel is not annually filled with heavy sediment from the Kankakee it will, at least, require constant dredging to maintain it.

"The same remark will apply to other points where there are deep excavated cuts in the river-bed, even with little diminution of velocity of current at floods, but the reach below the mouth of the Kankakee, extending to Marseilles, only will probably present much difficulty; other points to a less degree, as most of the heavier material is brought in by the Kankakee River, and will lodge in the pools below its mouth and above Marseilles Dam.

"The water available for lockage throughout the proposed line being in excess of the requirements of the system, no slope is given to the summit level, or provision made for increasing the present discharge of the Illinois River." * * *

"For the section of the river under consideration, locks and dams are necessarily employed, and the nearer the system approaches slack water,

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the nearer it approaches the best channel for navigation. As the discharge increases, the velocities of the current increase, and finally when the depth of water over the crests of the dams becomes, as the river rises, such as to allow a free discharge, the currents become difficult, or even prohibitory, to upstream navigation, as heretofore stated. The bed of the Illinois River above La Salle at several points being of such steep slope, and its discharge at high water and the variation in its discharge between high and low water so great, 70 to 1, it cannot be regarded as a very favorable stream for the application of locks and dams. The system fails at high water. Any material increase in the discharge over this section of the river, except at stages near the low water, or below the midstage, would be, then, not only undesirable, but objectionable, as far as the interests of navigation are concerned. At all times when the natural discharge of the Illinois River produces a stage obstructive to navigation over the slack watered reaches, or damaging to property interests, artificially introduced waters should be diminished in quantity to the least effective amount, or entirely cut off."

Post and Paul Report.

"*To the Canal Commissioners of the State of Illinois:*

687 The undersigned, to whom was referred the leveling of the route and estimating the expense of constructing the contemplated canal for connecting the waters of Lake Michigan, with those of the Illinois River, in presenting their field notes and plans of the route and levels taken, have the honor to report:

That pursuant to instructions from the Commissioners, they proceeded with two companies, one to Chicago, on the shore of Lake Michigan, and the other to the rapids of the Illinois River, with a mutual understanding resulting from a cursory examination of the topography of the country made in the autumn of 1823, to confine the operations of leveling to the north side of the River Illinois and Aux Plaines, and in the valleys of those rivers. In consequence of which the party at Chicago, after sounding the lake near the shore, and sounding and meandering the Chicago River to its head (the waters of which were found stagnant and on a level with the water in Lake Michigan), proceeded leveling in the direction of the ford of Desplaines, where they crossed that stream and descended on the north side, in its valley, till the two companies intercepted each other in the front of Mount Joliette.

The object of this tour being to ascertain the inclination of an imaginary plane drawn from the surface of the water in Lake Michigan to the surface of the water, at some convenient point on the Illinois River, below the rapids, and to consider the practicability and probable expense of constructing a canal connecting those points, the undersigned have confined themselves no further to locations than merely to designate the two extreme points, the head of the Chicago River being one, and the confluence of the Little Vermillion and the Illinois being the other. The depth of the water between this point and the rapids being insufficient for the purposes of navigation, and the nature of the adjoining shores of the rivers being unfavorable for the object required, it was deemed advisable to descend to this point (a few miles below the foot of the rapids), where a convenient and safe location of the junction of the canal with the river may be had; it

being near the bluff, and having, in its immediate vicinity, but a small strip of ground, at any time, subject to inundations.

Between the two extreme points above designated, the country, particularly the vallies of the river, being generally an open prairie, the undersigned have, in the courses run, consulted expedition, but when practicable, have avoided crossing ground sensibly affected by high water.

From this general view of the plans of their operation, the undersigned draw their attention to a more detailed consideration of the various subjects connected with the object in view, and beg leave further to report:

1st. On the inclination of the planes connecting designated points on the route, and the inclination of the plane connecting the extreme points.

2d. On the rivers crossed in the route, their general character and the quantities of water furnished by each.

3d. The description and nature of the earth and rocks on the route followed.

4th. On the probable quantity of excavations, embankments and grubbing.

5th. On the number and description of aqueducts, dams and culverts that will probably be required on the different routes.

6th. On the probable number and description of locks and moles.

7th. On the probable expense of construction, including the different routes designated on the plat.

8th. On the practicability of construction.

9th. Observations and remarks.

1st. The inclination of the planes connecting the different points on the route, and the inclination of the plane connecting the extreme points.

In taking the observation to ascertain the difference of level between the points hereafter designated, the undersigned have operated with all practicable care; and in all cases where the distances between the level station and the sight poles were not exactly or nearly equal; the necessary corrections for curvature and refraction, have been made, from which it is presumable that the results herein shown may be considered very nearly approximating the
688 truth.

The object the undersigned had in view in ascertaining

the respective levels of the points B. P. S. I. and L., noted on the plat, was to enable themselves to more satisfactorily investigate the various routes that may be formed by connecting those points, in the vicinity, and on either side of the Desplaines; then from the knowledge they possess of the intermediate country, to judge of their respective practicabilities, and probable expense of construction.

From the mouth of the Little Vermillion, the point of beginning, to L, a distance of 33 miles, 16 chains, 08 links, and 9 ms. 64 chs. 03 below the point where the route traced on the plat crossed the River Aux Sable, there is an ascent of 86 feet, 11 inches, 2-10. Here the main bluff of the Illinois disappears, having gradually settled down to the level of an extensive valley spreading out to the north and east (in which the river Aux Sables and Nettle Creeks have their courses) which is supposed to unite with a similar valley, putting out in a southwestwardly direction, from the valley of Aux Planes, near Cache Island.

From the point L to the point I, near Cache Island, is a distance of 37 ms. 47 chs. 02, and has an ascent of 67 ft. 3 in 8, consequently the practicability of an interior route, connecting those points is visibly manifest; but the quantity and nature of the cutting required to connect them can be ascertained only by careful examination and survey.

From the point I at Cache Island to the point B at the ford of the Desplaines, a distance of 18 ms. 56 chs. 60, there is an ascent of 15 ft. 0 in. 4, and the canal on the northern side of the river may be so located as to avoid, in some degree, the deep cuttings between these points. From the point B at the ford of the Desplaines, to the point C, the summit level of the country between the Desplaines and the Chicago River, or Lake Michigan, a distance of 12 chs. 28, there is an ascent of 5 ft. 8 in. lines. The point C we have denominated the summit level of the route between the ford of the Desplaines and Lake Michigan, but it is evident that by the ultimate location that must necessarily be given to the canal, the point C will also be the summit level of the route connecting the two extreme points. Then from C to A, at the head of the Chicago River, a distance of 7 ms. 40 chs. 64, there is a descent of 17 ft. 0 in. 6.

From this concise detail of results, it readily follows that the point L is 86 ft. 11 in. 2 above the water level at V, the point of beginning; that the point I at Cache Island, is 154 ft. 3 in. above the same point; that the point B at the ford, is 169 ft. 3 in. 4, above the same point; and 11 ft. 3 in. 7 above the point A at the head of the Chicago; that the summit level C is 5 ft. 8 in. 9, above the point B, and 17 ft. 0 in. 6 above the point A, or the surface of the water level of Lake Michigan; that the point A, or surface water level of Lake Michigan is 3 ft. 8 in. 7 above the point I at Cache Island; and finally that the surface water level of Lake Michigan is 157 ft. 11 in. 7 above the surface water level of the point where it is contemplated to connect the canal with the River Illinois.

Before dismissing the subject now under consideration, the undersigned deem it expedient, for the more ready comprehension of the vertical section thye have presented of the traced route, to call the attention of the Commissioners to the different scales used, for without a constant attention to this point, the representation will appear quite imperfect, since the ratio of the horizontal to the vertical scale is as 1 to 165.

2d. *Rivers to be crossed, their general characters, and the quantity of water respectively furnished by each.*

In ascending from the point of beginning, passing the rear of the Buffalo Rock, a range of high perpendicular rocks on the northern margin of the Illinois River, the first stream we meet with, worth of notice, is Fox River, 14 ms. 34 chs. 84 distant from the point of beginning. This is a river of considerable magnitude; is 4 chs. 09 wide, and at its present stage, furnishes 450,000 cubic feet of water in an hour. This stream, during the period of high water, evidently expands itself beyond its first banks, and probably rises, at those times, about 20 feet above its present surface level; but as its second banks, at the points crossed by the traced route, are nearly 35
689 feet above this surface level, and as the adjacent country presents no visible impediment to the construction of the canal toward this point, it appears practicable to cross this stream by an aqueduct extending from its second bank on one side to the second bank on the other, a distance of, say 600 feet. Although the piers necessary

to be constructed, to support the aqueduct, will obstruct the natural current of the stream, and thereby occasion a trifling accumulation of water above them, yet, as the aqueduct may be raised ten feet above the estimated rise of water, the effect of the accumulation, it is presumed, will be too inconsiderable to threaten any disastrous results. Were it desired, however, to construct a dam across this river, and on each side to connect the canal to the reservoir thus formed, it is believed that a position favorable to this view may be selected; but taking into consideration the inequable stage of the water in this, as also in all the rivers in our route, whenever it is practicable, it is most assuredly advisable, in constructing the canal, to pass the rivers by aqueduct in preference to passing them by dams. Then, should any part of the water be required to feed the canal an inconsiderable dam at some convenient point, above the aqueduct, may be constructed and the requisite supply of water drawn from the reservoir by a small side canal of sufficient capacity to convey the quantity of water required.

The next stream in our route of sufficient magnitude to claim our attention, is the river Aux Sable, 1 c 56 wide, and at its present stage, furnishes in round numbers, say 60,000 cubic feet of water in an hour. Judging from the position of the drift wood on its shores, and in the branches of the timber on its banks, it is evident that this stream, at the times of high water, rises from 12 to 15 feet above its present surface level. Here an aqueduct of about 320 feet long and 20 feet high will be required. Then by selecting a suitable position higher up the stream and constructing a dam across it, the canal may be fed by its waters, as in the case suggested by the Fox River. This river is 28 ms. 48 chs. 27 above Fox River, 43 ms. 3 chs. 11 from the point of beginning; 4 ms. 18 chs. 92 below the confluence of the rivers Desplaines and Kankakee, which form the river Illinois.

In passing from the River Aux Sable 8 mi. 31 c. 53 on our route we meet with the river Du Page a beautiful stream of water 66 feet wide, and furnishing 114,000 cubic feet of water in an hour. The maximum perpendicular rise of the water of this stream may be taken at, say 15 feet. Here an aqueduct, 320 feet long and 20 feet high will be required and a dam and side canal, for a feeder, as in former cases.

From the river DuPage, passing on 19 M. 28 c. 46, we touched the river Desplaines, at Cache Island, that river is ascertained to furnish 117,000 cubic feet of water in an hour; then 18 m. 56 c. 60 further we reach the point B at the ford of this river, which here is 3 c. 34 wide, and furnishes 72,000 cubic feet of water in an hour. From this point we proceed on 7 ms. 52 c. 92 to the head of the Chicago River, on narrow arm of Lake Michigan, 5 m. 2 c. long; a natural canal, averaging say, 2 c. 50 in width, and having at no place between the bar at its entrance into the lake and its head, less than 12 feet of water.

It must be observed that as the above results are predicated on the present stage of water, and as the quantities, at different periods, is considerably variable, and may probably, at some times be lower than at present, it is advisable, that on the route which may be selected by the commissioners, the results should show a surplus of water sufficient to answer this probable depreciation.

690 3d. *The description and nature of the earth and rocks on the route traced on the map.*

From the cursory examination the undersigned have been able to give on the subjects embraced under this head, having been limited to a passing view of the mere surface of the route, and the broken sides of ravines which occasionally presented themselves, they are fully sensible that they here offer to the Commissioners a very imperfect sketch of the varities of the earth, soil, pebbles and rocks that would be met with in a deliberate, scientific examination of this section of the country.

The earth in some of the small valleys is alluvian and in others gravel and sand, apparently washed from the neighboring bluffs, or adjoining ridges. The ridges present some varieties; many of which, especially in the middle and upper part of the route, are sand and gravel; others are loam with occasional starta of clay; and the sides of the ravines frequently exhibit argellaceous appearances, and in some instances, assumes a slaty texture; but considering the earth, en masse during the entire route, it may be considered of a quality favorable to excavation. On the greater part of the distance there are, in the valleys of the rivers, loose rock of various sizes, from those of a finger stone to those of several tons

weight, promiscuously scattered over the surface. In several parts of the route, especially in the vicinity of the Fox River, ledges of rock make their appearance, but in ultimately locating the canal the greater part, if not all these visible ledges, may be avoided; but as the base of the country, from the foot of the rapids of the Illinois to the ford of the Desplaines is probably rock, it is presumable that wherever the canal may be located, in the requisite excavations, ledges of rock will intercept the line and present themselves to view above the bottom of the canal, hence in estimating the probable expense of excavation, this supposition should be duly regarded.

The principal ingredient in the composition of these rocks, especially those in the ledges, is sand; some, however, are silacious and very hard, which is almost invariably the case with these loose stones on the surface, some are calcareous and some are apparently pure sand, and are readily decomposed by the light stroke of a hammer. In the vicinity of Fox River, and between that stream and the coal bank, there are several of those ledges, and on the surface we observed frequent clusters of stones apparently thrown together by art, having a considerably thick coat of calcareous substance, containing a perfectly silicious nucleus. In the bluffs of the Illinois about one mile and a half below the Little Vermillion is, to all appearances, an extensive body of gray limestone, and in the bluffs of the Desplaines, above Mount Joliette, large quantities of similar stone are exposed to view. At several other intermediate points we discovered a species of calcareous sandstone, tolerably hard, granular in their texture, and will probably make lime, but of very inferior quality. However, from the ledges of grey limestone above noticed, and from the bed of the limestone, near the bank of the Chicago River, from which the inhabitants in that section of the country obtain their supply of this article, it is supposed a sufficient quantity of lime and building stones may be procured for the construction of the locks that may be required on the canal.

4th. *The probable quantity of excavations, embankments and grubbing on the different routes.*

What the undersigned denominate *difference routes*, are the variations which may be given to the upper part of the route lying between the head of the Chicago River

and the point in the River Desplaines, near the head of Ile a la Cache or Cache Island. From this point to the mouth of the Little Vermillion, all the routes are the same, excepting in that from A to H, by which it is contemplated to use the water of Lake Michigan alone for a
691 feeder. By this route, after passing the Desplaines by an aqueduct at H the canal will communicate with the principal line at K, and thence proceed to the mouth of the Little Vermillion. To avoid tautology and circumlocution in our subsequent observations, relative to the variations here indicated, we will denominate the route from the head of the Chicago by the ford of Aux Plaines to B, and thence by K, to be the *first route:* that from A to P, thence along the bed of the river to Cache Island, and thence to I, K, &c to be the second route; that from A to S, thence in the bed of the river to Cache Island, and thence by I, K &c to be the *third route;* that by A to Cache Island, I, K &c to be the *fourth route;* and that from A to H, K &c to be the *fifth route;* by taking the *first* route the whole line of the communication must be formed by dams, aqueducts, excavations and embankments. Now, if we suppose 1-10th of the distance, or ten miles, to be embankments; 1-30th of it, or three miles, excavation in rock (which is supposed in each case to be a liberal allowance) and 1320 feet of aqueducts, and 500 feet dams, the remaining part of the distance will fall on ground easily excavated. Then by assuming the aclivity and declivity of the surface to be equable, a supposition that may be nearly realized in the ultimate location of the canal, it is believed the deep cuttings that will be absolutely required, will be compensated by supposing the whole capacity of the canal, to-wit, 40 feet wide at top, 28 feet wide at bottom, and four feet deep to be excavated. The small quantity of timber to be met with, on the route traced on the map, all lying below the diverging lines at Cache Island, the quantity of grubbing, in all cases here considered, will be the same, which we suppose to be in all five miles.

Assuming the above estimates as data, the whole line being 97 ms. 2 c. 62, we have on this route,

Excavations in earth	83 ms. 58 c. 26
do in rock	3
Embankments	10
Grubbing	5

This route supposes a canal, from the ford of the Desplaines to the head of the Chicago, to be supplied from the water of the Aux Plaines, excepting what may be drawn to it from the small lake called the Lac de la Pointe Aux Chenes, or Oak Point Lake, lying near the summit level of the route. This lake is supposed to be supplied from water from the springs in the marshy ground around it, and as it is higher than the water of the Chicago, no difficulty exists in using its water to feed the canal. Then the other part of the route, as far down as the River Du Page, must necessarily be supplied by the water of the Aux Plaines above the ford, and such as may be drawn to it from the spring brooks in the route.

By taking the *second route,* the distance from P to Cache Island, 18 ms. 56 c. 60, will be in the bed of the river, in which 100 feet of rocks, lying in stagnant water, must be removed; then deducting from the distance from P to Cache Island from the distance of earth to be excavated, we have for this route,

Excavation in earth, 65 ms. 1 c. 66

The excavation in rock, embankments and grubbing, the same as before. In this route, the canal between the head of the Chicago and Aux Plaines may, more evidently than in the former case, be fed by the small Lac de la Point Aux Chenes.

By the *third route,* the distance from A to S, just above the Saganashkee, must be excavated, and that part of the canal supplied from the river Desplaines and the waters of the lake of the Saganashkee, in the immediate vicinity of that part of the canal. From this point to Cache Island, the bed of the river will be followed 9 m. 32 c. 60. Deducting this distance from the whole extent of the excavation in earth, we shall have on this route.

Excavation in earth, 74 ms. 25 c. 66

692 The excavation in rock, embankments and grubbing, the same as before. Supposing this route to be taken, the same 100 feet of rock in the bed of the river, mentioned in the last route, must be removed, in order to insure a ready and safe passage for boats at all stages of water.

By the *fourth route,* we have the same extent, of excavation as in the first, however, it is probable, that in this the digging will be easier but more deep cutting than in the first route, consequently estimating it the same, we have for this route the same results as for the first.

This route supposes the water to be drawn from Lake Michigan, and at the head of Cache Island, where the surface water level is 3 ft. 7 in. 7, below the surface water level of the lake, to mingle with those in the reservoir formed by the dam at this place. On this supposition, the excavation will naturally form an artificial river between the head of Cache Island and the lake, which will alternately flow from and to the lake, as the waters in the River Desplaines may be low or high. In this route it will be observed that the digging will necessarily pass through the marsh of the Saganashkee, or British Swamp. of Lake Michigan alone to supply the canal, in consequence of which it will be necessary to continue it on the south side of the river till the river has acquired a sufficient descent to enable the canal to be carried over it by an aqueduct which will be at a point about eight miles below Cache Island. This aqueduct, it is supposed, will be about 500 feet long and 30 feet high; hence, on this route also we will have the same excavations, embankments and grubbing as in the first, together with the additional expense of the aforesaid aqueduct. But all the dams required on the other routes may be dispensed with on this.

5th. The number and description of aqueducts, dams and culverts that will probably be required.

Whichever of the above mentioned routes may be selected by the Commissioners, it is supposed that the final location of the canal may be such as to avoid the greater part of the deep ravine to be met with on, and in the immediate vicinity of, the route leveled; in consequence of which, and on the supposition that a number of culverts may be taken in the ratio of two to each mile, we shall have, for the first route,

Aqueducts at Fox River, say	600	feet long,	30	feet high
ditto at Aux Sables	360	ditto	20	ditto
ditto Du Page	360	ditto	20	ditto
Dam at B. on Aux Plaines	300	ditto	4	ditto
" " Aux Sables	100	ditto	4	ditto
" " Du Page	100	ditto	4	ditto
Culverts, say	200			

By the *second route,* we shall have the same aqueducts, and the same number of dams as above, except the dams across the River Desplaines, in the place of being at the

ford, will be at the head of Cache Island, and the number of culverts will be say, 162.

By the *third route,* the aqueducts and dams will be the same as in the second route, but the number of culverts will be say, 174.

By the *fourth route,* the aqueducts and dams will be the same as in the former case, but the number of culverts will be say, 142. This supposes no culverts from Cache Island to the Chicago.

By the *fifth route,* in addition to the aqueducts supposed for the former routes, respectively, we shall have one at the Little Rock, on the River Desplaines, 500 feet long and 30 feet high. On this route all the dams, as before observed, may be dispensed with, and the number of culverts will be the same as in the first route, which was estimated at 200.

693 *6th. The probable number and description of locks and moles.*

It has already been observed that from Cache Island to the mouth of the Little Vermillion, there is a descent of 154 ft. 3 in.; that from the ford of the River Desplaines to the same point, there is a descent of 169 ft. 3 in. (4); that from the ford to the head of the Chicago River, there is a descent of 11 ft. 3 in. 7; that from the head of the Chicago River to the Little Vermillion, there is a descent of 157 ft. 11 in. 7; and from the head of the Chicago River to the Cache Island, a descent of 3 ft. 8 in. 7; hence, by the first route we have the ascent of 169 ft. 3 in. 4, and a descent of 11 ft. 3 in.; giving an aggregate of 180 ft. 7 in. 1. Now, observing the small inclination of the planes of the ascent and descent, and reflecting on the general uniformity and equability of the surface of the country, it is supposed the intermediate locks may be located at very nearly equal distances from each other, in consequence of which the maximum inclination of the bottom of the canal should not, on any account, exceed one inch in a mile. Assuming this maximum as a datum, we shall have on this route, 172 ft. 6 in. of lockage, exclusive of the entering lock at the lake, should that be eventually desired, and such guard locks as may be necessary. From these results it follows, that on this route there

must be 22 locks of 7 ft. 10 in. one lift each, and probably 11 guard locks.

These guard locks will be located as follows: one on each side of the contemplated dam at the ford; two at the supposed feeder from the lake of the Point Aux Chenes; two at the proposed feeding canal at the River Du Page; two at that of the River Aux Sable; and, say three small ones at the spring brook whose waters may be required to feed the canal between the ford and the Du Page; and if it should be found necessary, two others at a feeding canal from Fox River; however, it is believed that these will never be required.

By the *second route*, we have an ascent from the Little Vermillion to Cache Island of 154 ft. 3 in., and from the point P to the head of the Chicago a descent of 11 ft. 3 in.; giving an aggregate of 165 ft. 6 in. Then, assuming the same inclination for the bottom of the canal as in the former case, there will result in ascent and descent 157 ft. 5 in. of lockage, giving as follows:

20 locks of 7 ft. 10 in. 4 and probably eight guard locks.

These guard locks will be located as follows: one at the River Desplaines at P; two at the supposed feeder of the lake Point Aux Chenes; one on the north side of the reservoir at Cache Island and from this to the lower end of the route the same guard locks as mentioned from the Du Page to Fox River inclusive.

By the *third route*, we have at Cache Island an ascent of 154 ft. 3 in. and from S to the head of the Chicago, a descent of 11 ft. giving an aggregate of 165 ft. 3 in. Then, assuming as before, for the inclination to be given to the bottom of the canal, we shall have an ascent and descent 157 ft. 2 in. of lockage and consequently,

20 locks 7 ft. 10 in. 3 lifts each, and probably 8 guard locks.

In this route the guard locks from the Cache Island to Fox River, inclusive, will be the same as in former cases, but for the upper part of the route we shall have a guard-lock at S, on the Desplaines River, and one, or probably two, for the feeding canal, from the Lake of the Saganashkee.

By the *fourth route*, we have the ascent to the Chicago equal to 157 ft. 11 in. 7—deducting from this 3 ft. 8 in. 7, the ascent from Cache Island to the Chicago, we have 154

ft. 3 in. for the ascent to Cache Island, as before shown, consequently, on this route, making the same assumption for the inclination of the canal, as before, we shall have 140 ft. 3 in. of lockage, which will require,

10 locks of 7 ft. 10 in. 6 lift each—and probably five guard locks.

In this case, it is probable that all the guard locks required will be those already designated on the routes between Cache Island and Fox River, inclusive. Should any others be required, they will evidently be located as follows: one at the head of the Chicago River, and one on the south side of the reservoir at Cache Island.

694 By the *fifth and last route* considered, the entire ascent, as before, is 157 ft. 11 in. 7, which, supposing the inclination of the canal as in the former cases, will give 149 ft. 10 in. 7 of lockage, and require,

19 locks of 7 ft. 10 in. 6 lift each.

Adhering in this route to the supposition of obtaining from Lake Michigan the entire water supply to be used, it is probable that all the guard locks required will be one at the head of the Chicago River, and if required and found practicable to construct, another in the Saganashkee.

In all the routes above suggested, the horizontal plane of the lift locks are supposed to be the same; for example:

Length	76 feet
Breadth	14 ditto at each end,

having a batter on each side of the lock of half an inch in each foot perpendicular height;

The horizontal section of its sides being extremely flat elliptical arches nearly approximating right lines, the chords being respectively 76 feet, and each fleche $\frac{1}{2}$ of an inch for each perpendicular foot of the height of the lock. Such is the plan of the principal locks on the New York Grand canal. This peculiar construction being adopted, without doubt to give more strength to the sides of the locks, and, thereby to enable them to more effectually sustain the lateral pressure of the adjoining earth. But on the supposition of the cavities being left, or substantially occurring in the rear of the masonry, this precaution to acquire strength and give stability to the lock would absolutely weaken it, and leave its sides more exposed to the pressure of the water in its chamber, than

would be experienced by having the walls of the chambers straight and perpendicular. The effect of the elliptical form and batter of the side of the locks has been experienced in the canal of Languedoc, and subsequently avoided in the straight and perpendicular sides given to the chambers of those given in the canal of Picardie, in the Gravilines, and in many others constructed on the continent of Europe. Another and very important advantage possessed by the locks with straight and perpendicular sides, is the additional facility, and reduction of expense attending their construction; a consideration at all times, where absolute utility, instead of ornament is consulted, worthy the most serious attention.

The next subject claiming investigation is the manner in which a convenient and sure entrance may be had into Lake Michigan. On this point there has been considerable diversity of opinion expressed by persons visiting the place; some of whom, on examination of the sandbar formed by the operation of the surf of the lake in front of the mouth of the Chicago River, have considered the formation and continuance of a navigable inlet into the river, to be a hopeless task, the prevailing winds having a tendency to accumulate sand on that shore; but reflecting on the improvements, from time to time, made in the harbor of Dunkirk, as a particular example, the reflecting mind will readily assent to the practicability of the achievement.

To ascertain the probable expense of effecting this object, the undersigned have sounded the lake sufficiently far from the shore to obtain a depth of 15 feet of water which is supposed to be sufficient for any of the vessels navigating the lake. Influenced by the result of these observations, the undersigned recommend to the consideration of the Commissioners the construction of a double mole, or wharf, such as are constructed on the shores of our seaport towns, having a space between them of, say 40 feet wide, for the passage of vessels from and to the lake, as shown on the sketch of that harbor herewith presented. The exterior part of this mole, or the part between the sandbar and the point in the lake where the requisite depth of water is obtained, should be 40 feet at the bottom, 20 feet at top, and 20 feet high. The interior part, passing through the sandbar and en-

tering the Chicago River, may be 20 feet at bottom, 10 feet at top, and 20 feet high. Then, as the exterior distance
695 is 18 chains, and the interior 8 chains, we have, for the entire contents, 371,360 cubic feet, which computed at the rate of 6¼ cents, the cubic foot, will give $54,460 for the expense of construction.

Again, if we suppose the whole interior distance of 8 chains long and 20 deep, to be excavated, we shall have to remove 15,644 cubic yards, which computed at 10 cents the cubic yard, will amount to $1,564.40; or, say, in round numbers, that the mole completed will cost $57,000. This project once effected, the Chicago River, for five or six miles in length, will afford one of the finest and most secure harbors in the world; for here vessels, drawing from 15 to 20 feet of water may ride perfectly secure from the destructive effects of storms and tempests. In locating this projected mole, on the sketch of the harbor, the undersigned have been governed by the direction of the prevailing winds on that lake, and, consequently, to secure its entrance from the severity of those winds have given it the oblique direction there shown.

7th. The probable expense of construction, including the different routes designated on the plat.

The Commissioners will be aware, that in the estimate here presented of the probable expense of constructing the contemplated canal, considering the present stage of operations, merely approximate values are to be supposed; for *absolute correctness* cannot be expected, even after the final location, nor until it shall have been entirely completed. However, the undersigned, in obtaining these results, have duly compared and deliberated on both the propitious and adverse features which their operations and cursory examination of the country have presented to them in relation to the object in view, and have thence drawn the data used in their computation.

From the preceding investigation, we obtain, for the first route, as follows:

Excavation in earth 2,217,017 cubic yards a 10 ct	$221,701.70
Excavation in rock 79,875 cubic yards a 50	39,937.59
Embankment 265,950 cubic yards a 18	47,851.00
Three aqueduct (stone piers and trunk of wood) 1,320 linear feet a $50	66,000.00
Three dams in all 500 linear feet a 7	3,500.00
22 locks, of 7 ft. 10 in. 1 lift each a $1,000 per ft.	172,500.00
11 guard locks (average value $2,500)	27,500.00
Mole at Chicago	57,000.00
200 culverts a $200 e	40,000.00
Grubbing five miles a $1,200 per mile	6,000.00
Sum	$682,010.20
Contingent expenses, say 5 per centum	34,100.51
Total amount	$716,110.71

For the *second route,* supposing the excavations on rocks, the embankments, aqueducts, dams, mole and grubbing to be the same in the above, there will remain to be deducted from the net amount there shown, the following sum, to-wit:

Excavation in earth 502,385 cubic yards a 10 cts	$50,238.50
15 ft. 1 in. of lockage a $1000	15,085.33
Sum	$72,921.83
Estimate of first route	$682,010.20
Deduct the above sum	72,921.83
Remainder	$609,088.38
Add for contingencies 5 per cent	30,454.41
Probable cost of second route	$639,542.78

For the *third route,* making the same supposition as in the last case, there will remain to be deducted, from the estimate of the first route, as follows:

696 Estimate for the first route $682,010.20

Deduct for excavations in earth 250,105 cubic yards at 10 cts	$25,010.50	
Deduct lockage of 15 ft. 4 in. at $100	$15,333.33	
26 culverts at $200	5,200.00	45,543.83
		$636,466.37
To this add 5 per cent. for contingencies		31,823.31
Probable expense of third route		$668,289.68

For the *fourth route,* take the estimate of the first route $682,010.20

From which deduct for		
6 guard locks of $2,500 each	$15,000	
58 culverts a 200	11,600	
24 ft. 3 in. lockage a $1000	24,250	50,850.00
Remainder		$631,160.20
Add for contingency 5 per cent		31,558.01
Probable cost of fourth route		$662,718.21

For the *fifth route,* take the estimate of the first route $682,010.20

To this add for one aqueduct 500 feet long $25,000		25,000.00
Sum		$707,010.20
From this deduct for		
22 ft. 7 in. 3 of lockage a $1000	$22,608.33	
10 guard locks a $2,500	25,000.00	
3 dams 500 ft. a 7	$3,500.00	51,108.33
Remainder		$656,901.87
Add for contingencies 5 per cent		32,845.09
Probable cost of the fifth route		$689,746.96

That is, the probable expense of the first route will be $716,110.71

second route	639,542,78
third route	668,289.68
fourth route	662,718.24
fifth route	689,746.96

8th. The practicability of construction, including the different routes.

The only requisite to insure the practicability of effecting a canal navigation over any section of the country, is a competent supply of water on the summit level of the desired route. The competency of water, on the summit level, being an indispensable condition in the successful construction of canals, it remains for us to examine which it can be obtained in either, or on all of the respective routes herein suggested.

On the first route the entire demand to supply the canal from the head of the Chicago River to the River Du Page, must be drawn from the River Desplaines at the ford, from the Lake De la Point Aux Chenes, and from such spring brooks as lie in the route between the ford and the Du Page.

In the first place, assuming the dimensions of the locks as above shown, to-wit: 76 feet long and 14 feet wide, having straight and perpendicular sides, and supposing the canal to be full, the passage of each boat will require 8,512 cubic feet of water; then, if we suppose the time required for filling and discharging the lock and passing the boat to be 15 minutes, we will require for both branches of the canal, emanating from the reservoir at the ford, 68,096 cubic feet in an hour. To this expense must be added the water lost by evaporation, leakage and absorption. Now, the distance from the Du Page to the ford being 38 ms. 05 c. 06, and from the ford to the head of the Chicago, being 7 ms. 52 c. 92, giving an aggregate of 45 ms. 57 c. 98, and the canal being supposed 40 feet wide at the surface of the water, we shall evi-
697 dently have a surface of 9,657,067 square feet of water exposed to the action of the sun and atmosphere.

From this surface, agreeably to the average of experiments, there will each hour be dissipated by evaporation, 3,212.3 cubic feet. Then, if we suppose the like quantity to be lost by leakage and absorption, we shall have for an hourly aggregate demand 74,520.6 cubic feet.

Now, as the Desplaines River has been ascertained to furnish in each hour 72,000 cubic feet, and if we add to this 1,000 cubic feet which the lake de la Pointe Aux Chenes is supposed capable of furnishing in an hour, and 22,500

cubic feet which it is supposed may be drawn from spring brooks, to be met with on the route, between the ford and Cache Island (it being half the accession being found between those two points) and 6,000 cubic feet receivable from other small streams, between Cache Island and the Du Page, we shall have an hourly fund of 101,500 cubic feet, hence the probable hourly surplus of water on this route may be estimated at 26,980, or in round numbers say 27,000 cubic feet. It must be observed that these estimates are predicated on the supposition that boats are passing and repassing in as rapid a succession as practicable, a supposition which should, indubitably, obtain when we seek for general results and maximum effects. The distance above determined is the only part of the route on which the least apprehension of deficiency of water can exist, for the Du Page, furnishing 114,000 cubic feet and 8 ms. 31 c. 53 below it the Aux Sable furnishing 60,000 cubic feet in an hour, all of which is subject to the use of the canal, gives positive assurance of an abundant supply for the remaining part of the route.

By the second route, we commence with the quantity of water furnished, in an hour, by the River Desplaines at Cache Island, 117,000 cubic feet, and to this add the 1,000 feet an hour supposed obtainable from the Lac de la Point Aux Chenes, and 6,000 cubic feet from the springs above Du Page, as before, which gives an hourly aggregate fund of 124,000 cubic feet. Assuming the evaporation, abembrace objects of greater importance), are for the purmer route, and computing the quantity required for the upper part of the route to be 34,048 cubic feet an hour, there will remain, subject to the demand of the route lying between Cache Island and Du Page an hourly fund of 83,479 cubic feet. Now, this demand was supposed to be 34,048 cubic feet, consequently, on this route there will remain an hourly surplus of 49,527, say 49,000 cubic feet for that part of the canal above the River Du Page, below which, as before shown, there is the greatest abundance.

By the third route we have the same quantity of water as in the second, with what may perhaps be obtained from the Lake of Saganashkee, which we will suppose to be 3,000 cubic feet in an hour. Then suppose the demand, in all respects to be the same as in the former

cases, there will remain on the route above the Du Page, an hourly surplus of say 52,000 cubic feet.

By the fourth and fifth routes, the first of which supposes the canal to be supplied both by Lake Michigan and the River Desplaines, and the second by Lake Michigan alone, all desirable quantities of water are at command; but relative to the entire practicability of constructing a canal on either side of these two routes, the undersigned cannot hazard an opinion without previously examining, with more care than they have yet been able to, the country in the vicinity of the Saganashkee; for the only apparent objection to either of them emanates from the probable necessity of passing through the lower end of it. If this swamp cannot be avoided by some circuitous route, the difficulty and expense of constructing a canal through it, will in all probability, be very great; and even then, since this point is, say 10 feet higher than Lake Michigan, success in preserving the canal from inundation and imminent danger of destruction from the high water of the swamp and its lake, will be extremely doubtful.

9th. Observations and remarks.

698 By the preceding estimate, omitting, as will be noticed in the estimates of the two last routes, the additional expense that would be necessarily incurred in crossing Saganashkee, the average cost per mile, of the several suggested routes will be nearly $7,000. Comparing this with the cost of other canals particularly the Middlesex Canal, which absolutely cost, exclusive of the land through which it passes, $13,374 per mile, and the New York Canal, by estimation $10,500 per mile, as also with others in Europe, the expenses of which have been enormous; and, at the same time considering the relation of object effected by many of those already constructed, and to be effected by that now in contemplation, the mind is forcibly impressed with its great importance, and with peculiar pleasure rests on the period when a canal navigation between Lake Michigan and the Illinois shall have been achieved.

Many and, indeed we may say, nearly all, of the canals that have been constructed, except those in the State of New York (the ultimate effect of which are destined to embrace objects of greater importance), are for the pur-

pose of facilitating the communication along an accustomed highway; opening to commerce no new field—giving to agriculture no new excitement; but in relation to the intercourse between the Illinois and Lake Michigan the case is widely different. Here the canal will not only furnish a safe and expeditious mode of conveyance between two important points, but to open the western states a new and additional market, and, by the reciprocal advantages afforded excite their citizens to industry and enterprise. It will, in truth be adding one of the most important links to the American commercial chain, which must, by its effects, bind together the respective interests of the Atlantic and western states; consolidate the commercial and political policy of the most distant parts of the Union, and give to the patriot a grateful theme.

The western states, separated from the eastern by the Allegheny Mountains, are confined to New Orleans alone for a market for the immense surplus of produce they do and may supply, much of which is liable to almost immediate injury from the humidity and heat of the atmosphere of that climate. Long has this cheerless prospect been to the farmers of the west, and long have they anxiously looked for an era more propritious. That this desideratum may be realized; that a new and advantageous market may be opened for the various productions of this fertile region, and that we may, by the artificial direction given to the waters of our lakes and rivers, reciprocate with others the advantages derivable from commercial intercourse, the preceding detail of results authorize the presumption.

All of which is respectfully submitted.

JUSTUS POST
R. PAUL

Vandalia, December 25, 1824."

699 LIST OF VARIOUS DOCUMENTS USED BY THE WITNESS LYMAN E. COOLEY IN THE PREPARATION OF THE CONSOLIDATED PROFILE COOLEY EXHIBIT 3, AS FOLLOWS:

Cooley Exhibit 21—Profile of United States survey of 1902-4.

Cooley Exhibit 22—Sheet 55, accompanying the foregoing profile.

Cooley Exhibit 23—Sheet 56, accompanying said profile.

Cooley Exhibit 24—Sheet 57, accompanying said profile.

(Note: The witness indicated that Sheets 11 and 12 in House Documents 263 of 1905 embrace the material Cooley Exhibits 22, 23 and 24; said Sheet 11 was marked Cooley Exhibit 22a, and said Sheet 12, Cooley Exhibit 23a.

Cooley Exhibit 25—Sheet 13, Marshall's survey of Waterway from Lake Michigan to the Illinois River of 1890, being duplicate of Zarley Exhibit and the sheet used in cross-examination of witness Mills, containing marks put thereon during said cross-examination.

Cooley Exhibit 26—Sheet 15 of Benyeaurd survey of 1893.

Cooley Exhibit 27—Sheet 16 of foregoing.

Cooley Exhibit 28—Sheet 2 of plans of dam, May 20, 1908.

Cooley Exhibit 29—Map and profile of Desplaines and Illinois Rivers, Lockport to Henry, by the Sanitary District of Chicago.

Cooley Exhibit 30—Profile Lake Michigan to Cairo, Sheet No. 1, by the Drainage District of Chicago.

Cooley Exhibit 31—(Previously put in evidence as Cooley Exhibit 15.)—The Seddon profile, showing flow lines of Desplaines and Illinois Rivers between Joliet and LaSalle.

Pages 189 to 192, inclusive, of House Document 263, 59th Congress, First Session, 1905, containing data of discharge, measurements of Illinois and Desplaines Rivers.

Pages 478 to 520, inclusive, of said House Document 263.

Cooley Exhibit 32—Gauge readings of the Desplaines River at Riverside for the year 1905, taken from the Proceedings of the Sanitary District of Chicago, that year.

Cooley Exhibit 33—(Previously introduced as Cooley Exhibit 13; Trans., p. 7642; Abst., p. 876.)—Pages 944 to 962, inclusive, Proceedings of the Board of Trustees of the Sanitary District of Chicago, November 27, 1907.

Cooley Exhibit 34—Gauge readings, Riverside gauge, 1907, from Proceedings of Sanitary District of Chicago.

Cooley Exhibit 4—Tabulation of flow in main channel, by Sanitary District of Chicago, for the year 1900.

Cooley Exhibit 5—Tabulation of flow in main channel, by Sanitary District of Chicago, for the year 1901.

Cooley Exhibit 6—Tabulation of flow in main channel, by Sanitary District of Chicago, for the year 1902.

Cooley Exhibit 7—Tabulation of flow in main channel, by Sanitary District of Chicago, for the year 1903.

Cooley Exhibit 8—Tabulation of flow in main channel, by Sanitary District of Chicago, for the year 1904.

Cooley Exhibit 9—Tabulation of flow in main channel, by Sanitary District of Chicago, for the year 1905.

Cooley Exhibit 10—Tabulation of flow in main channel, by Sanitary District of Chicago, for the year 1906.

Cooley Exhibit 11—Tabulation of flow in main channel, by Sanitary District of Chicago, for the year 1907.

Cooley Exhibit 35—Original profile of Desplaines and Illinois Rivers, by General J. A. Wilson, 1867.

Cooley Exhibit 36—Original profile of Desplaines and Illinois Rivers, by Colonel J. A. Macomb, 1874.

Profile Sheets 7 and 8, House Document 192, 54th Congress, Second Session, Report of Deep Waterways Commission.

Title page of said book is as follows:

> "Report of the United States Deep Waterways Commission, prepared at Detroit, Michigan, December 18-22, 1896, by the Commissioners, James B. Angell, John E. Russell, Lyman E. Cooley. Accompanied by the report on Technical Work and the Several Topical Reports and Drawings pertaining thereto. January 18, 1897.—Referred to the Committee on Interstate and Foreign Commerce, with accompanying papers, and ordered to be printed. WASHINGTON: Government Printing Office. 1897."

700 OFFICIAL REPORT OF THE SANITARY DISTRICT ON THE LAKES TO THE GULF WATERWAY OF 1890 AND 1891, PAGES 3 AND 4 AND PAGES 8 AND 9, AS FOLLOWS:

"HISTORICAL RESUME.

1. FIRST THOUGHT OF A WATERWAY.—Great navigable rivers, separated by a short and low portage, the favorite trail of the Indian and the trapper, guided the first explorers, Joliet, Marquette, LaSalle and Hennepin, whose names are memorialized in the geeography of the route. The possibilities which dawned on these early visitors appealed to the pioneer until the 'Chicago Portage' was better known to statesmen a hundred years ago than to those of today, better known in an era when water transportation was the great instrument of commerce.

2. EARLY CONSIDERATION, 1808-1838.—Albert Gallatin, in his celebrated report of 1808, on means of internal communication, gave a prominent place to the project of a ship canal across this portage, and in 1811 it was reported in Congress in a bill along with the projected Erie and other canals. From 1808-1825 Clinton and Morris urged the 'proposed ship canal' as an extension of the Erie Canal to the Mississippi, thus opening up water communication by the lakes from the Hudson River to the Gulf. In 1838 General Dearborn writes of the canal as 'of such enlarged dimensions as to permit the passage of large vessels, being ten feet deep,' or all that could then be carried by lake across the St. Clair flats. The navigable waters of the Desplaines, as reserved for public use by the original land survey (made in 1821) approached at Summit within seven miles of the waters of Lake Michigan, at the South Branch of the Chicago River at Bridgeport.

3. EARLY SURVEYS. The first surveys appear to have been made by Capt. Long in 1816, and the United States passed its first act in 1822, and legislated farther in 1827, 1833, 1842 and 1854. The State of Illinois took action in 1823, authorized canal construction in 1829, and inaugurated the work in 1836. The State submitted plans in 1825, a survey was made by 'the United States in 1830, and further surveys by the State in 1833.

4. Canal Versus River: Canal Construction.—The question of canal or slackwater (locks and dams in the river) between LaSalle and Joliet was in controversy, and with the present it can be said was wrongly decided in favor of the canal. The work was prosecuted under various financial vicissitudes, and finally opened in 1848 on a modified plan, with summit level across the 'Chicago Divide' eight feet above low lake level and supplied from the Calumet River by a feeder through the Sag, a side branch of the ancient outlet leading out by Blue Island. This summit level was finally cut down to lake level, according to the original plan, in 1866-1871, by the City of Chicago for sanitary purposes, thus fulfilling in a minor degree the dream of two hundred years, a flow of water from the Great Lakes to the Mississippi.

III. The Policy of the State and the Sanitary District.

1. State Legislation. The policy of the State of Illinois and of the Sanitary District of Chicago is defined in the legislation by the General Assembly of 1889, viz.:

1. An act to create Sanitary Districts and to remove obstructions in the Desplaines and Illinois Rivers. Approved May 29, 1889. In force July 1, 1889.

2. An act in reference to the improvement of the Illinois and Desplaines Rivers, and to repeal an act entitled, 'An Act to cede certain locks and dams in the Illinois River to the United States. Approved May 31, 1887. In force May 31, 1887.' Approved June 4, 1889. In force, July 1, 1889.

Joint resolution defining the policy of the State in regard to a waterway of the greatest practicable depth and usefulness for navigation from Lake Michigan via the Desplaines and Illinois Rivers, and to encourage the construction of feeders thereto of like proportions and usefulness:

2. Organization of the Sanitary District. This policy was further defined and the laws given a practicable bearing by the petition for a sanitary district, the decision of the three judges acting as a commission to determine the boundaries of said district, and the vote of 80,000 electors against less than 200, by which the Sanitary District of Chicago became an accomplished fact.

3. Statement of Policy. The policy thus defined may be epitomized as follows:

1. To construct a waterway of a capacity of not less than 10,000 cubic feet per second (600,000 cubic feet per
701 minute) from Lake Michigan at or near the Chicago River across the Chicago Divide of a width of not less than 160 feet and of a depth of not less than 18 feet, to some point on the Desplaines River where the water may be released to the public river anywhere between Lockport and Lake Joliet. The joint resolution in contemplation of co-operation by the United States, specifies the depth at not less than 22 feet to Lake Joliet.

2. To secure a depth of not less than 14 feet from Lake Joliet to LaSalle.

3. To so design the works from Lake Michigan to La Salle as to permit further developments for any additional capacity and for a depth from Lake Joliet to La Salle equal to that across the Chicago Divide.

4. To remove the state works at Henry and at Copperas Creek, on the lower Illinois, within four years or sooner, if accession of water will permit, and to stop work upon the Government locks and dams at La Grange and Kampsville, and to improve the lower river from La Salle to the mouth in such manner as to develop progressively all the depth practicable by the aid of a large water supply from Lake Michigan at Chicago.'

4. Work of the Sanitary District. The Sanitary District is obligated to construct a channel not less than 18 feet deep and of not less than the specified capacity across the Chicago Divide and may deliver the water to the public river at any point between Lockport and Lake Joliet."

The preface of said book reading as follows:

"To the Board of Trustees of the Sanitary District of Chicago.

Gentlemen:—

I submit herewith a preliminary report which is designed to cover the issues involved in a waterway from the Great Lakes to the Gulf of Mexico, and the relations which such waterway may bear to the Sanitary District of Chicago.

(Signed) L. E. Cooley,
Chief Engineer.

Chicago, August, 1890."

702 ABSTRACT OF LEASE BY THE ILLINOIS AND MICHIGAN CANAL COMMISSIONERS TO HENDERSON HOWK AND JOHN B. PRESTON OF DAM NO. 1, JULY 17, 1855, EXTENDED TO JULY 15, 1916, AS FOLLOWS:

"Trustees of the Illinois & Michigan Canal
to
Henderson Howk and John B. Preston.

Lease dated July 17th, 1855. No Recorders' Certificate. Consideration, a yearly rental of $500.00, upon conditions.

Term of Lease: '20 years from and after the 17th of July, 1856,' viz., *term expires July* 17, 1876.

Lease of the use and occupation of all water power at Dam No. One (1) on the Illinois and Michigan Canal at Joliet in said county. The water hereby leased is to be taken out of the canal basin above and adjoining said Dam No. One (1) at Lots Nos. Eleven (11), Twelve (12), Thirteen (13), Fourteen (14), Fifteen (15) and Sixteen (16) in Block Thirty-seven (37) in North Joliet, through openings in the wall of said basin left for the purpose, (etc.)

It is further agreed that on the expiration of this lease, the parties of the second part, shall be entitled to a renewal for a like term of years, for such rent as may be offered by the highest bidder

(who shall also agree to purchase of the said party of the second part all their permanent and valuable buildings & structures, necessarily erected by the parties of the second part, for the use of the water hereby leased at such price as such buildings & improvements shall be adjudged to be worth, by three judicious, disinterested freeholders to be chosen as hereinbefore specified.)

And if no such bid shall be made, on the terms aforesaid, at a higher rate than herein specified, said party of the second part shall be entitled to such renewal on the terms of this lease, for the further term of twenty years.

And it is further agreed that at the expiration of the second term of twenty years above referred to, the parties of the second part shall be entitled to lease the said water power & lots for a further term of twenty years,

(if the said Trustees shall not determine to disconsinue to rent the same) upon the same terms and conditions as last above referred to, or if other parties shall offer to pay more than the parties of the second part will pay, the person or persons so bidding more than the parties of the second part, shall be entitled to the same upon complying with the terms and conditions hereinbefore presented in case of renewal after the expiration of the first twenty years.

And if after the expiration of the first forty years herein provided for, the party of the first part shall determine to discontinue the leasing of said water power the owner or owners of any substantial improvements on the lots hereby leased, shall be entitled to purchase the said lots upon which such substantial improvements are actually located, if offered for sale by the Trustees, or the use of the same, if not sold,—upon such terms as may be determined upon between the parties, in either case, or in case of disagreement between said parties, then upon such terms as may be determined by three disinterested persons chosen as aforesaid.

And it is further agreed that the said parties of the second part, shall by the written consent of the said trustees, have the right hereafter to draw water, for propelling machinery, at any other point on said Canal Basin above dam number one (1).

In testimony whereof the parties of the first part have caused this instrument to be signed by its president and secretary and their corporate seal to be affixed hereto.

703 And the said parties of the second part have hereto set their names and affixed their seals the day & year first above written.

"Henderson Howk" (Seal)
"Jno. H. Preston" (Seal)

In presence of
"J. O. Norton"
"J. McRoberts"

The Board of Trustees of the Illinois & Michigan Canal

by

"W. H. Swift," *President.*
"Wm. Gooding," *Sec'y.*

Seal of
Board of Trustees
of the
I. & M. Canal.

To said copy of said original lease are also appended the following documents, which are abstracted as follows:

"(No Assignment by Howk & Preston.)

Commissioners of the Illinois & Michigan Canal to G. W. Hyde, Assignee.	Resolution, Dated July 12th, 1872."

Requiring assignee to pay $720.00 per annum for additional water power, making total rental of $1220.00 per annum.

Agreement to abide by the terms of the foregoing resolution by said G. W. Hyde.

"Commissioners of the Illinois & Michigan Canal to G. W. Hyde, Assignee.	Purported Renewal Agreement of Lease, Dated August 10th, 1876. Term of Renewal: 20 years from July 17th, 1876.

G. W. Hyde to J. L. Norton	Assignment of Lease, Dated July 1st, 1890. Consideration, $1.00.

Assignment is subject to all leases made by said Hyde.

John L. Norton to Economy Light & Power Company.	Assignment of Lease, Dated September 1st, 1890. Consideration, $1.00.
Commissioners of the Illinois & Michigan Canal to Economy Light & Power Company.	*Renewal* of Lease, October 3rd, 1896, for a further term of twenty years from July 17, 1896.

704 Said renewal of lease agreement is in the following words:

"In pursuance of the stipulations in the foregoing lease in regard to the renewal thereof (and in accordance with a resolution adopted by the Board of Canal Commissioners of the State of Illinois on June 30th, A. D. 1896), the same is hereby renewed with the Economy Light & Power Company of Joliet, Illinois, for a further term of twenty (20) years, including the right of renewal.

WITNESS the signature of the President and Secretary

of the Board of Canal Commissioners of the State of Illinois and official seal of the same this Third day of October, A. D. 1896.

ALT. GERDES,
President.
THOMAS H. CANNON,
Secretary.

The Seal of the Canal Commissioners of the State of Illinois.

And also the signatures of the President and Secretary of the Economy Light & Power Company, and the corporate seal of the same the day and year above.

ECONOMY LIGHT & POWER
By J. L. NORTON,
President.
F. R. McMULLIN,
Secretary.

The Seal of the Economy Light & Power Company, of Chicago, Illinois."

Commissioners of the Illinois & Michigan Canal to Economy Light & Power Company.	Resolution passed April 4th, 1901, increasing Water Power Rental, amount, $1525.00, time, October, November, December, 1900.
Commissioners of the Illinois & Michigan Canal to Economy Light & Power Company.	Resolution, October 1st, 1900, increasing Annual Rental, place, Water Power Dam No. 1. Amount, $10,457.00 per year.
Economy Light & Power Company to Commissioners of the Illinois & Michigan Canal.	Acceptance of the foregoing resolution.

Certificate by John M. Snyder, Acting Secretary of the Board of Canal Commissioners that the foregoing is a true copy.

705 CONSENT DECREE THE CANAL COMMISSIONERS V. THE SANITARY DISTRICT OF CHICAGO.

"17312.

The Canal Commissioners
v.
The Sanitary District of Chicago. } Bill for Injunction.

And now on this 28th day of October, A. D. 1898, again come the respective parties to this suit, complainant and defendant, by their solicitors, and the court having had this case under advisement since the conclusion of the argument herein and being now fully advised in the premises does find as follows:

(DUTY OF THE CANAL COMMISSIONERS.)

First: That the complainants, '*The Canal Commissioners*' are The Canal Commissioners of the State of Illinois, *duly appointed* and acting as such Canal Commissioners under the statutes of this State, and that the *Illinois & Michigan Canal with its bed*, banks, basins, dams, locks, *water power rights, lands, lots and all other property*, real or personal, belonging to it or used in connection therewith, *are by virtue of the statutes* of this State *under the exclusive care*, management and control of said Canal Commissioners, and that it is *their duty to maintain and preserve the structures* of the said Illinois & Michigan Canal, *and navigation on the same* and all its basins, and its locks, dams and all existing water power rights *for the benefit of the People* of the State of Illinois, as prescribed by the statute of this State.

(LOCATION OF CANAL.)

Second: That said canal passes through Will County in the State of Illinois, and through the Village of Lockport and the City of Joliet, in said County. That the level of said canal from where it enters the Chicago River, in Cook County, Illinois, extending Southerly to the Village of Lockport, on Section 23, Township 36, North, Range 10, East of the Third Principal Meridian, constitutes one level, which is fed from the waters of Lake Michigan by means of pumps maintained and operated by

the City of Chicago at what is known as Bridgeport in said City of Chicago, and at the south end of said level and in the Village of Lockport aforesaid is situated what is known as Lock No. 1; that the second level of said canal commences at Lock No. 1, proceeding in a southerly direction until it reaches Lock No. 2, in the Town of Lockport aforesaid; that from Lock No. 2 southerly said canal proceeds until it reaches Lock No. 3, which is near to the dividing line between the Town of Lockport and the Town of Joliet, in Will County, aforesaid; that from said Lock No. 3, said canal proceeds southerly and enters Section 3, Township 35, North, Range 10, East of the Third Principal Meridian, on the North line of said section running to Lock No. 4 at a point about 300 feet south of the north line of said Section 3 where is situated a lock known as Lock No. 4, and that from Lock No. 4, said canal proceeds through Section 3 aforesaid, until it reaches what is termed the upper basin of the canal, which embraces substantially the bed and banks of the Desplaines River, said upper basin commencing on Section 3 aforesaid about 1,500 feet north of the south line of said Section 3, and said basin continuing over and including a small portion of Section 4, Town 35, North, Range 10, East of the Third Principal Meridian, and a small portion of Section 10 in the same town and range, and entering Section 9 in the
706 same town and range, near the north line of said section, following the course of the Desplaines River, to a lock situated near to the center line of Section 9, Town 35, North, Range 10, East of the Third Principal Meridian, and near to a street in the City of Joliet, sometimes called Jackson street, said lock being known as Lock No. 5, and it being situated on the west side of said basin, and at said point said basin is terminated by a dam known as Dam No. 1 extending clear across said basin at its south end; that at the east end of said dam is located and situate Lots 11, 12, 13, 14, 15 and 16 of Block 37, of the Canal Trustees Subdivision of the North East quarter of Section 9, Town 35, North, Range 10, East aforesaid, which said lots are the property of the State of Illinois; that said canal continues its course from Lock No. 5 through the lower basin to Dam No. 2, and that said canal occupies from the north end of said upper basin to the said Dam No. 2 at the end of said lower basin, substantially the

original bed and banks of the Desplaines River; that at said Dam No. 2 an inlet is formed whereby water from the lower basin, aforesaid, is transferred to the level of the canal, known as the Channahon level, said level commencing about 300 feet above said inlet, and being protected by a Guard Lock at the north end thereof; that said Channahon level of said Illinois & Michigan Canal is continued through the City of Joliet, leaving Section 9 at or near a street known as Washington street in said City, and passing in a southerly direction nearly parallel with the Desplaines River through Section 16, Town 35, North, Range 10, and leaving said Section 16 at a point on the south line of said section, and west of the course of the River Desplaines, which river runs from Dam No. 2, southerly, thorugh said City of Joliet.

(SECTIONS 3 AND 9 EXCLUSIVE PROPERTY OF CANAL COMMISSIONERS.)

Third: That said Sections 3 and 9 are sections which were selected by the Canal Commissioners of the State of Illinois, and conceded to said State, by the confirmation of such selection, by the President of the United States under date of May 21st, 1830, under and in pursuance of the grant of the United States to the State of Illinois of land for canal purposes, made by virtue of the several acts of Congress of the United States relative thereto; that the Channahon level of said canal so far as it passes through the City of Joliet, the Guard Lock at the north end of said Channahon level, the Dam No. 2, at the south end of the lower basin; the inlet for water into the Channahon level of the canal from the lower basin just above Dam No. 2, and the lower basin of said canal from Dam No. 2 to Dam No. 1 were all constructed prior to the year 1841, under the direction and by the authority of the statute of the State of Illinois, providing for the construction of the Illinois & Michigan Canal, in force at that time; that Lock No. 5, Dam No. 1, together with a provision for the utilizing of water power at the east end of said dam on Lots 11, 12, 13, 14, 15 and 16, Block 37, in the Canal Trustees Subdivision, North East quarter of Section 9 aforesaid, together with the banks and the towpath constituting the border of the upper basin were all constructed by the authority of the Canal

Commissioners, or by the Canal Trustees of the State of Illinois, prior to the year 1848; that on the 31st day of August, A. D. 1848, the then Canal Trustees of the Illinois & Michigan Canal acknowledged and afterwards caused to be recorded a plat showing their subdivision of said North East quarter of Section 9, Town 35, North, Range 10, East of the Third Principal Meridian, and that said Lock No. 5 and said Dam No. 1, and said lots in Block 37 of said Canal Trustees Subdivision aforesaid, are all exclusively situate upon the North East quarter of Sec-
707 tion 9, Town 35, North, Range 10, aforesaid, and that said canal, its bed, basins, banks, structures, locks, dams, water power rights, are now the exclusive property of the State of Illinois, and have been such exclusive property since the termination of the trust estate, of the Trustees of the Illinois & Michigan Canal in the year 1871, and subject to such trust have been the exclusive property of said State since the consummation of the grant made by Congress to this State of land for Canal purposes, and the construction of said canal; that the State is also the owner of all of Block 1 in said Canal Trustees Subdivision of the North East quarter of Section 9, Town 35, North, Range 10, East of the Third Principal Meridian aforesaid, and has been such owner since the perfection of said congressional grant as aforesaid.

(Des Plaines River.)

Fourth: And the court finds that said Desplaines flows through the Town of Lockport aforesaid, in a north and south direction, and enters the upper basin of said Illinois & Michigan Canal at the present time, at a point about 1,200 feet north of the south line of Section 3, in the Town of Joliet aforesaid, and at a place known as the towpath bridge, and that since the construction of the said canal, said river has entered said upper basin at substantially the same point, and that the said Illinois & Michigan Canal, including its bed, its banks, its basins, its locks and dams, and the provision for water power rights at the east end of Dam No. 1, has been continuously maintained in substantially the same location, and in substantially the same manner from the north end of Lock No. 4, southerly, through the upper and lower basins and the Channahon level of said canal, so far as the same

extends through the City of Joliet, in the same place and location as when said canal, its basins, locks, dams and structures were originally constructed and completed, and since the year 1848, in which year, the court finds that said canal was originally opened for navigation.

(Lease of Water Power Rights.)

Fifth: And the court further finds that since the opening of said canal, there has always existed and been owned by the people of the State of Illinois, under the control of the Trustees of the Illinois & Michigan Canal, in the first instance and their successors, the complainants herein, a water power right at the east end of said Dam No. 1, which water power right has been leased under a lease hereafter referred to, since the year 1856, for the benefit of the People of the State of Illinois; that there has existed since prior to the year 1864 a water power right for the benefit of the People of the State of Illinois, at both the east and west ends of Dam No. 2 aforesaid and that such right has been leased at the east end of said Dam No. 2 since the year 1864, and at the west end of said Dam No. 2 since the year 1883; that on the Channahon level of said canal within the corporate limits of the City of Joliet, and at a distance of half a mile south of said Dam No. 2, water is and has been drawn for power purposes as hereinafter found at three different places, which waters so drawn have been under lease by the Canal Commissioners of the State for the benefit of the People of the State of Illinois since the year 1883.

(Lease of Water Power at Dam No. 1.)

That said *water power right* at the east end of Dam No. 1 *was leased* by the then Trustees of the Illinois & Michigan Canal, *by a lease executed July* 17th, 1855, whereby the said lots numbered from 11 to 16 inclusive, in Block 37, in the Canal Trustees Subdivision, called North Joliet, together with the right of all water power existing at said dam, was demised *for the term of twenty years, with a right on the part of the lessee to an extension or renewal* of said terms upon the terms of said lease, on the expiration of the first term of twenty years, *for a further term of twenty years,* and with *the right*

708 *upon the expiration of the first renewal of said lease* to the *lessees to receive a further renewal for an additional term of twenty years,* and that said lease *commanded* by its terms to run on the 17th *day of July,* 1856, and the *People of the State* through their agent, have been *continuously receiving their rents* from the water power at Dam No. 1 and for said lost from the said lessees or their assigns from the date of said demise to the present time, and *that said lease was at its expiration, renewed for a term of twenty years, which expired on the 17th day of July,* 1896, and *was subsequently renewed* in accordance with its terms and requirements for a second and final term of renewal *expiring on July 17th,* 1916, which second renewal is now in force and outstanding, and that said lease contained a provision to the effect that if by reason of any improvement, alteration or enlargement of the canal, the amount of water power thereby leased should be increased or diminished, the same should be adjusted between the parties by a corresponding increase or diminuation of the rent therein reserved for said water power, upon the basis of said lease, and that said rental was increased in accordance with said provision as against the assignees of said lease, on to-wit: the 31st day of July, 1872, from $500.00 for the water power to $1,220.00 per annum for such water power.

(Dam no. 2 East End Lease for Ten Years from October 3rd, 1896, Acquired by Sanitary District.)

The court further finds that the lease was made of existing water power at the east end of said Dam No. 2, so far as such power could be availed of by the then Trustees of the Illinois & Michigan Canal, to one Lorenzo P. Sanger, on the 12th day of September, 1864, and that said dam, have been continued and in force from the date of said lease to said Sanger, and that all of said water power at said east end of said dam No. 2, was on the *3rd day of October,* 1896, leased to the *American Stone Company by the Canal Commissioners* of the State of Illinois, *for a period of ten years,* in conformity with the provisions and statutes relative to leasing water power, and by agreement the court finds that said defendant has duly acquired under the law of eminent domain the head and

tail races of said power and duly acquired in the same manner the leasehold interest of said lessee, all of which was so acquired before March 1, 1898.

(Dam No. 2 West End Lease for Ten Years from September 11th, 1883, Acquired by Sanitary District.)

That an existing water power right at the west end of the Dam No. 2 was utilized by leasing the same by the Canal Commissioners to one John E. Bush in the year 1883, in conformity with the statute relative to leasing water power, for a period of ten years with the right of renewal thereof for ten years more; and that the said defendant has duly acquired under the law of eminent domain the head and tail races of said power and duly acquired in the same manner the leasehold interest of said lessee all of which was so acquired before March 1st, 1898. That on the 11th day of September, 1883, the Canal Commissioners leased to the Northwestern Tile Company the right to take water from the Channahon level of said canal for the period of ten years, being a right to draw water according to the terms of said lease on the Channahon level of said canal for power purposes, discharging the same into the Desplaines River, and that the use of said water so drawn from said Channahon level, under said lease has been continued by said lessee and its assigns, to the present time.

(Other Leases.)

709 The said Canal Commissioners on the 11th day of September, 1883, leased to one James B. Speer and Frank H. Marsh the right to take water from the Channahon level of the Illinois & Michigan Canal, and use the same for power purposes, discharging the tail water into the Desplaines River by a lease executed in accordance with the statute of this State, and that said water so drawn from said Channahon level has been utilized under said lease by said lessees, or their assigns up to the present time.

The court further finds that on the 11th day of September, 1883, the Canal Commissioners leased to William M. Druley the right to draw water for power purposes from said Channahon level of said Illinois & Michigan Canal in accordance with the statute of the State of Illinois, where-

by said lessees received the right granted by said lease to draw water from the Channahon level of said canal discharging it into the Desplaines River, for power purposes, and that said water so drawn has been continuously drawn and in use by said lessee or his assigns since the date of the first granting of said lease, and that all of the water so drawn under said leases from said Channahon level of said canal has been drawn from the east side of said canal, so far as the discharge of the water is concerned, and at points where the differences in the level of the surface of the water in the Channahon level and the surface of the water in the Desplaines River, at a point where they discharge the water used for water purposes therein is about 13 feet and has been substantially of that head since the granting of said water rights and the utilization thereof by the Canal Commissioners in the year 1883 as aforesaid.

(All Existing Water Power Rights Arose Prior to January 1st, 1889.)

And the *court expressly finds* that *all of said water power rights were existing water power rights prior to the first day of January,* 1889, and proir to the passage of the act of the General Assembly entitled, 'An Act to create Sanitary District and to remove obstructions in the Desplaines and Illinois Rivers,' and prior to the approval of said act which appears to have been approved on the 29th of May, 1889, and except as the same may have been acquired by the said defendant herein, prior to March 11, 1898, *are and have been continuously existing* and in use as hereinbefore found.

(The Sanitary District, Its Creation and Purpose.)

Sixth: And the court further finds that said defendant, the Sanitary District of Chicago is a municipal corporation organized under the act of the Legislature of the State of Illinois, entitled 'An Act to create Sanitary Districts and to remove obstructions in the Desplaines and Illinois Rivers,' approved May 29th, 1889, in force July 1st, 1889, and that the organization of said defendant was completed under the terms and conditions of said act about the 19th day of January, A. D. 1890; that said Sanitary District has proceeded to construct a main channel

for the drainage of said District, extending substantially from a connection with the Chicago River at Robey street in the City of Chicago, in the County of Cook and State of Illinois, to the south line of Sections 14 and 15, in Township 36, North, Range 10, East of the Third Principal Meridian, in Will County, Illinois, said township being known as the Town of Lockport; and that a large portion of the work of the construction of said main channel has been completed, and that said District has expended in the construction of said main channel and in and about the purposes for which it was organized the sum of about twenty-six million dollars before the commencement of this suit; that said main channel terminates near to the south line of Sections 14 and 15 in the Town of Lockport aforesaid; and that the slope mentioned in the 23rd section of said act under which said defendant is organized, as between Lockport and Joliet, and wherein it is pro-
710 vided 'in case a channel is constructed in the Desplaines River, as contemplated in this section, it shall be carried down the slope between Lockport and Joliet to the pool, commonly known as the upper basin, of sufficient width and depth to carry off the water the channel shall bring down from above, commences at the termination of said channel near to the south line of Sections 14 and 15 in the Town of Lockport aforesaid, and terminates at the point where the Desplaines River enters the upper basin as hereinbefore found; and that the plans of the Sanitary District provide for carrying the water discharged from said main channel between banks constructed by itself to a point near to the south section line between Sections 22 and 27 in said Town of Lockport, where said flow from said main channel is turned into the Desplaines River and from thence follows the course of the Desplaines River down to the point where the same enters the upper basin of said Illinois and Michigan Canal in Section 9, in the Township of Joliet aforesaid; and that by the terms of said act under which said defendant is organized it is required that a flow of water through the said channel shall be maintained of twenty thousand cubic feet per minute for each one hundred thousand inhabitants within the limits of said Sanitary District, and that the population of said Sanitary District is less than one million five hundred thousand people at the date of this decree, and

that the requirements of said law at the date herein would require said defendant to provide for a continuous flow at the present time of not less than three hundred thousand cubic feet per minute.

(DUTY OF CANAL COMMISSIONERS TO PRESERVE NAVIGATION IN ILLINOIS & MICHIGAN CANAL.)

Seventh: The court further finds that it is the duty of the Canal Commissioners to preserve the navigation of the Illinois & Michigan Canal; and that said defendant has no power or authority under its organic act to injure or destroy any existing water power rights on said Illinois and Michigan Canal which were in existence at the date of the approval, to-wit: May 29th, 1889, and the taking effect of said act, to-wit: July 1st, 1889.

(INCREASED WATER POWER RIGHTS AT DAM NO. 1 BELONG TO THE STATE.)

The court further finds that the amount of water which the channel of the Sanitary District is required by the terms of the act under which it is organized to cause to be brought down a slope between Lockport and Joliet into the upper basin of the Illinois & Michigan Canal, and the flow of which by the terms of said organic act it is required continually to maintain, will increase the amount of water flowing in said basin over Dam No. 1 from about 40,000 cubic feet per minute to at least 300,000 cubic feet per minute, and will increase the power now being used at said Dam No. 1, to a very large extent; that *the State of Illinois* by *virtue of said existing water power right at said Dam No.* 1, and its ownership of the bed, banks and basins of said Canal, and said dam and locks at said Dam No. 1, *is entitled to use and utilize any increased power which may be created at Dam No.* 1, by reason of any increase in the amount of water flowing through said upper basin.

(HEAD OF WATER AT DAMS NO. 1 & NO. 2.)

Eighth: The court finds that the mitre sill of lock 4 has been since the construction of said lock at an elevation below Chicago datum of minus 47.84 feet; that said Dam No. 1 when the water is at the crest of same is at

an elevation of minus 42.4 feet and that ordinarily the depth of the water over the mitre sill of said lock 4 is no more than is necessary, requisite and reasonably safe to preserve navigation on the Illinois & Michigan Canal, between locks Nos. 4 and 5 with said Dam No. 1 at its present height of 42.4 feet below Chicago datum; that the head of water under which power can be utilized since 1856 at Dam No. 1, is ten feet, and that the head of the water at Dam No. 2 under which power has been prac-
711 tically utilized since the granting of the leases as hereinbefore found, is practically 6 feet, and that the lease at Dam No. 2 called for a head of 7 feet.

(CONTRACT OF CANAL COMMISSIONERS WITH SANITARY DISTRICT BEYOND THE POWER OF CANAL COMMISSIONERS.)

Ninth: And the court further finds, that the provisions of the *agreement or contract* executed by the complainant and the defendant of date March 11th, 1898, and a copy whereof is attached to the original bill and to the original answer in this case, *so far as the same provides for or authorizes the construction of the new dam at the site of Dam No.* 1, *with the crest of such new dam at the elevation of* 46 *feet* or *at any elevation lower than* 42.4 *feet below Chicago datum* and *so far as* the *same provides* for a *conveyance* by the *Canal Commissioners* to the Sanitary District of Chicago of the *title to lands is beyond the power of either of the parties* hereto to make under the statutes of this State, but in other respects said agreement is authorized, valid and binding; *that said defendant is given no power under the statute to occupy any portion of the Illinois & Michigan Canal* within the limits of the County of Will in the State of Illinois, except to cross the same; that such crossing must be made under the direction and supervision of the Canal Commissioners, and must be made in such a way as not to impair the usefulness of said canal and in such a way as not to injure the right of the State therein, and in such a way as not to injure or destroy existing water power rights, and the court expressly finds that said contract or agreement and the plans prepared for carrying out the work contemplated thereunder by said defendant, will impair the usefulness of said canal, and will injure the right of the State therein, and will unnecessarily

greatly injure existing water power rights belonging to the people of the State of Illinois, appurtenant and belonging to said canal, and under the charge, care and control of said complainant.

(Power of Canal Commissioners.)

Tenth: The court further finds that said Sanitary District had power under its organic act, and the *Canal Commissioners likewise had power under said act, to agree,* as to the *amount of compensation* that should be paid to the Canal Commissioners *for the benefit of the People* of the State of Illinois *for any property* that might be necessarily appropriated by the Sanitary District for the objects of its creation that the plan of the Sanitary District for the utilization of the upper and lower basins of the Illinois & Michigan Canal in the City of Joliet, as finally modified, requires the entering upon and acquiring a right of way over a portion of Block 1 of the Canal Trustees' Subdivision entitled 'North Joliet, hereinbefore referred to and for the erection of a temporary crib work in the upper basin as shown by the plan, and the erection therein of a permanent masonry wall extending from lock No. 5 northward in the upper basin to a distance of 500 feet also for the erection of a new dam on the site of the present Dam No. 1 to a height of minus 46 feet below Chicago datum; and also for the construction of a crib work or temporary dam through the lower basin of said canal from Lock No. 5 to the guardlock at the head of the Channahon level and also for the permanent closing of the inlet to the Channahon level between the guardlock and Dam No. 2; and also for the building of a permanent masonry wall extending from Lock No. 5 to a junction with the tow path of the canal,
712 on the easterly side thereof near Jefferson street and south of the guardlock so as in effect to extend the Channahon level from its present terminus as located at the north end thereof, northerly through the present basin to Lock No. 5; for the excavation of said lower basin through its entire extent east of said permanent wall to a depth of minus 57 feet below Chicago datum at Dam No. 1, with a fall of 2 feet in each thousand feet to a point in the Desplaines river about 500 feet north of McDonough street bridge in the City of Joliet, which bridge

is near to the center section line, east and west, of Section 16 in said Town of Joliet; and for the entire removal of said Dam No. 2; that such plans for such temporary crib work are sufficient and proper for the work sought to be done; that the plan for the wall extending northward from Lock No. 5 and southward from Lock No. 5 to the Channahon level is sufficient so far as construction is concerned; that the necessities of the case demand the removal of Dam No. 2 as contemplated in said plans, and also demands the excavation of said channel in the lower basin from Dam No. 1 through to Dam No. 2 and below that to the point where said excavation terminates about 500 feet north of McDonough street bridge in the bed of the Desplaines river to the depth and on the slope as contemplated by said plans, and as herein found, and that the same to the extent as herein found are proper and necessary under the organic act of said District.

(Crest of Dam No. 1.)

Eleventh: The court further finds that the *crest of said Dam No.* 1 or any structure to be erected to take its place, *cannot safely be placed at a less height than the crest of the existing dam,* to-wit: at a height of 42.4 feet below Chicago datum; that said District has no power or authority to injure or destroy existing water power rights, and that the lowering of the crest of said Dam No. 1 to minus 46 feet below Chicago datum as contemplated in the proposed plans of said District would interfere with navigation upon the Illinois & Michigan Canal, and would also interfere with existing water power rights of the State of Illinois at Dam No. 1; and that said proposed plans so far as they relate to supplying the Channahon level are insufficient to supply to said level the quantity of water required for the navigation of said canal below said guard No. 5 and at the same time to supply water now and heretofore used by said water powers on the said level after compensating for the loss to said powers, consequent upon the loss of head thereto by reason of the increased flow of water in the Desplaines river below Dam No. 1.

(PAYMENT OF $7630.00 TO CANAL COMMISSIONERS A REASONABLE COMPENSATION.)

Twelfth: The court further finds that on the tenth day of August, 1898, said defendant paid to Howard O. Hilton, the sum of $7,630.00, as compensation for so much of Lots 1, 2, 3, 4, 5 and 6, Block 1, in North Joliet as might be appropriated by said defendant for the use of its channel, and as compensation for the property of the State, parcel of the said Illinois & Michigan Canal proposed to be used by said defendant in and through the lower basin of said canal, and that said sum of $7,630.00 was received by said Howard O. Hilton as a tender by said defendant of such compensation, that such sum was a reasonable, just and proper amount to be paid by said defendant to said complainant for the public property used by said defendant, that said Hilton was at said time Treasurer of the Canal Commissioners, and had power and authority to receive said money, and that his receipt thereof was and is a payment of such amount to said Canal Commissioners and to the State of Illinois.

713 *And the court finds that the real estate for which said payment was made is described as follows:*

All that *part* and portion of said *Block one* (1) in North Joliet aforesaid which lies *within the* boundary *lines* of the *proposed channel* of said defendant as now there located, which proposed channel, as now there located is *three hundred feet wide*, and the center or middle line thereof is located and described as follows that is to say:—

Beginning at the point of intersection of the east line of Section Four (4), Township Thirty-five (35) North, Range Ten (10) East of the Third Principal Meridian, and a line parallel to the westerly reserve line of the Illinois and Michigan Canal, said parallel line being four hundred and seventy-five (475) feet distant from said westerly reserve line measured at right angles; running thence southwesterly along said parallel line for a distance of eight hundred and sixteen and twenty-nine hundredths (816.29) feet to a point of curve; running thence on a curve to the left of said curve having a radius of fourteen hundred and forty-nine (1449) feet for a distance of ten hundred and two and thirteen hundredths

(1,002.13) feet to a point of reserve curve; running thence on a curve to the right, said curve having a radius of six hundred and twenty-eight (628) feet for a distance of four hundred thirty-three and six hundredths (433.06) feet to a point of tangent.

Also all that part of the Southeast Quarter (S. E. 1/4) of Section Nine (9), Township Thirty-five (35), North, Range Ten (10) East of the Third Principal Meridian; lying west of the center line of Joliet street produced, east of the Desplaines river and north of the north line of Reed street in the City of Joliet.

Also that part of Lot Two (2), Block Three (3), Old Town of Joliet lying east of the east wall of the Illinois and Michigan Canal.

Also a certain tract of land in the Southeast Quarter (S. E. 1/4) of Section Nine (9), Township Thirty-five (35) North, Range Ten (10) East of the Third Principal Meridian, north of Jefferson street, west of the Desplaines river and east of a line fifty-six (56) feet distant from and parallel to the center line of the Illinois & Michigan Canal, said center line running through a point, in the south line of Block sixteen (16) West Joliet produced one hundred and seventy (170.00) feet distant from the southwest corner of said Block and forming an angle of ninety-five (95) degrees and fifty (50) minutes with said south line, measured from north to west.

Also part of the Southeast Quarter (S. E. 1/4) Section Nine (9) Township Thirty-five (35) North, Range Ten (10) East of the Third Principal Meridian described as follows:

All that part of Blocks three (3) and eight (8), and all that part of Benton street, Desplaines street and Webster street, Old Town of Joliet, lying west of the east wall of the Illinois and Michigan Canal. The above described property being situated in the Townships and City of Joliet, in the County of Will and State of Illinois.

And the court further finds that *in addition to compensation for the use of the real estate* above described, the said sum of $7,000.00 *included compensation for the suspension for one year* for the use of existing water powers leased by said complainant on the Illinois & Michigan Canal to its tenants.

Thirteenth: That on the 15th day of August, 1898, *an injunction was issued by the order of the judge of this*

court in vacation upon the original bill in this case, *enjoining* and restraining said defendant and the agents, servants, attorneys, solicitors, officers, employees and contractors of said defendant, or any person connected directly or indirectly with said defendant or under its control or supervision, from in any manner *taking possession of or interfering with the possession of the Canal Commissioners* in and to Lots one (1), two (2), three (3), four (4), five (5), and six (6), in Block One (1) in North Joliet, in Section Nine (9), Township Thirty-five North,
714 Range Ten (10) East of the Third Principal Meridian and lying west of the upper basin of the Illinois and Michigan Canal, and from in any manner taking possession of or interfering with the possession of the Canal Commissioners in and to a tract of land situate in the City of Joliet in Will County, State of Illinois, located north of Jefferson street in said City of Joliet, and lying between the lower basin of the Illinois and Michigan Canal and the guard lock and level of the said canal running south from said guard lock, and from in any manner taking possession of or interfering with the possession of the Canal Commissioners in or to any of the lands, beds, banks, basins, dams, locks or any property pertaining to the said Illinois and Michigan Canal belonging to the State of Illinois and under the charge of the Canal Commissioners, and from removing any dam, or building any structure upon or excavating any part or portion of any basin or channel of the Illinois and Michigan Canal, and from in any way interfering with the Canal Commissioners in the exclusive control, management, operation or use, of said Illinois and Michigan Canal, its bed, basin, locks, dams, banks, or any other property, real or personal, appertaining or belonging to said canal.

Fourteen: The court further finds that the *plans and specifications submitted by the defendant* to the complainant, on June 28th, 1898, are adequate and sufficient for the works proposed by them, and are in compliance with the contract of March 11th, 1898, but *are not in compliance with the requirements of the statute* providing for the crossing of the Illinois & Michigan Canal, contemplated by such plans.

Fifteenth: And the court *further finds that it has jurisdiction* of the persons of the parties, complainant

and defendant herein, and of the subject matter of this suit, and that the complainant is equitably entitled to relief under the pleadings and proofs herein.

It is therefore ordered, adjudged and decreed by the court,

First. That the *contract or paper writing of March 11th,* 1898, a copy whereof is attached to the original bill herein, and which purports to have been executed by the complainant and the defendant, *to the extent herein found, is in excess of the power* of either the complainant or defendant to execute, and *to the extent so found is of no binding force or effect,* but in either respects is authorized, valid and binding.

Second. That said *complainant and defendant have the right to agree* as to the amount of *compensation* to be paid and received for the use of any property of the People of the State of Illinois, parcel of the Illinois & Michigan Canal, and that the *sum of* $7,000.00 for the appropriation by said defendant and the use of said lots fronting on Jefferson street, and in the east side of the lower basins of said Canal, and for suspending for one year the use of existing water power, leased by said complainants, all the property of the state, and *the further sum of* $630,000 *for* so much of the lots in Block 1 in North Joliet, as said defendant proposes to take and appropriate hereinbefore described, *are just and adequate compensation for such property,* so proposed to be taken, and water power so temporarily suspended by said Sanitary District, and belonging to the State for the use of an outlet to its main channel, and that the sum of $7,630.00 paid to Howard O. Hilton on the 10th day of August, 1898, was a sufficient payment for the use of such lands and lots and property, and temporary deprivation of said complainant of the rental of water power and was made to the proper person by said defendant.

715 *Third.* That said *defendant be,* and it is hereby *perpetually enjoined and restrained from* in any manner *directly* or *indirectly injuring or destroying the existing water power rights* of the State of Illinois at *Dam No.* 1 aforesaid, and that it be and is hereby *perpetually enjoined* and restrained from proceeding to erect any dam or structure in place of Dam No. 1, which shall not have a permanent crest at a height equal to the permanent crest of Dam No. 1 at the date hereof, to-wit: 42.4 feet

below Chicago datum that it be enjoined and *restrained from in any manner decreasing the head of water for power and navigation purposes* now existing in *the Channahon level* of the said Illinois & Michigan Canal and herein found to be under ordinary and usual conditions about 13 feet, without compensating therefor by an increased flow of water into said level, equivalent to said loss of head that it be enjoined and restrained from interfering with the water power at Dam No. 2 and with Dam No. 2, except upon condition that it do furnish and supply proper and necessary facilities for the development of a power equal to that existing at said Dam No. 2 at some other place, and that it be enjoined and restrained from building any structures providing for an inlet of water into the Channahon level of the canal, except upon conditions that the structures be sufficient to preserve navigation on the Illinois & Michigan Canal, and the use of the water therefor as now used and provided for, including a flow of water to supply the lower levels of said canal from said Channahon level, and unless it also provides in addition to such flow, as may be required for navigation, such an amount of water for use on said Channahon level for power purposes as shall conform to the finds and requirements herein as to same; and that such perpetual injunction shall extend to and be operative as against said defendant the Sanitary District of Chicago and any and all persons, firms or corporations, acting or pretending to act by any authority of said defendant, whether such authority be direct or indirect.

Fourth. It is further ordered, adjudged and decreed by the court, that *said defendant be enjoined and restrained from in any manner entering into the lower basin* of said Illinois & Michigan Canal, or appropriating the same or any part thereof to its uses, *except on condition that it do excavate to a width sufficient to carry the flow of its channel,* and to a depth at Dam No. 1 of not less than 57 feet below Chicago datum, and continue such excavation to such depth of 57 feet below Chicago datum with such additional depth, through the said lower basin and to a point not less than 500 feet north of McDonough street bridge, situate near the center east and west line of Section 16, Town 35, North, Range 10, East of the Third Principal Meridian, as will be created

by a slope of such channel of two feet in each thousand feet in length southerly from Dam No. 1, said slope commencing at said Dam No. 1, and at a depth of 57 feet below Chicago datum.

Fifth. It is further ordered, adjudged and decreed, that a *perpetual injunction issue out* of and under the seal of this court commanding and enjoining said defendant, its agents, servants, contractors, employees, attorneys, solicitors and all other persons claiming to act under or by authority from defendant in any way, directly or indirectly, as is above stated, and that the temporary injunction heretofore issued in this cause, by order of one of the judges in this court in vacation, be and the same is hereby modified, so that the same shall be enforced and applicable to the extent specified in this decree, adjudgment a permanent injunction as against said defendant and no farther.

It is further ordered that the defendant, the *Sanitary District of Chicago, pay its costs* made in this case to be taxed by the clerk of this court.

716 And now on this 3" day of November before the settling of the terms of this decree and the signing of the same, the defendant, by its solicitors, here presents to the court its petition for a rehearing in this case, together with the affidavit of Thomas T. Johnston in support of the same, and here now moves the court for a rehearing of this case. And the court having heard arguments and being fully advised in the premises *doth overrule said petition and motion for a rehearing and denies said rehearing.* To which ruling of said court in denying a rehearing of said case said defendant by its solicitors then and there excepted.

And the *defendant here now in open court prays an appeal to the Supreme Court of Illinois,* which appeal is granted without bond. And the defendant is hereby given and granted sixty days from and after this date within which to present its certificate of evidence herein.

(To which order and decree of said court, except that part thereof overruling said petition, for a rehearing, the *said complainants also now here excepts and prays an appeal to the Supreme Court* of the State of Illinois, without bonds; which is granted by the court, and leave is given to said complainant to present and file a certificate of evidence herein, the same to be presented within sixty days, from this date.)

BRANCH COURT OF THE WILL COUNTY CIRCUIT COURT

Of the September Term, A. D. 1898.

Thursday, November 3rd, 1898.

Court opened by proclamation of sheriff.
Present:—

Hon. Robert W. Hilscher, Judge.
Frank Vander Bogart, Clerk.
John Francis, Sheriff, and
William D. Heise, State's Attorney.

Attest:—

FRANK VANDER BOGART,
Clerk.

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717 The Canal Commissioners
17312 *vs.*
The Sanitary District of Chicago } Bill for injunction.

And now on this 3" day of November before the settling of the terms of this decree and the signing of the same, the defendant, by its solicitors, here presents to the court its petition for a rehearing in this case, together with the affidavit of Thomas T. Johnston in support of the same, and here now moves the court for a rehearing of this case. And the court having heard arguments and being fully advised in the premises doth overrule said petition and motion for a rehearing, and denies said rehearing.

(To which ruling of said court in denying a rehearing of said case said defendant by its solicitors then and there excepted.)

And the defendant here now in open court prays an appeal to the Supreme Court of Illinois, which appeal is granted without bond. And the defendant is hereby given and granted sixty days from and after this date within which to present its certificate of evidence herein.

(To which order and decree of said court, except that part thereof overruling said petition, for a rehearing, the said complainant also now here excepts and prays an appeal to the Supreme Court of the State of Illinois, without bonds which is granted by the court, and leave is given to said complainant to present and file a certificate of evidence herein, the same to be presented within sixty days, from this date.)

COUNSEL FOR COMPLAINANT. Now, if your Honor please when

very rapidly they were giving the testimony of Mr. Munroe, he testified thus:

"Q. When did you first become identified with this project to build a dam on the Desplaines River somewhere in the neighborhood of the Illinois? A. In the spring of 1904.

Q. Had you any connection at that time of any nature with the Economy Light & Power Company? A. No, sir.

Q. What was the first time you had any negotiations with the Economy Light & Power Company in reference to this project? A. In May, the latter part of April or the first week in April, 1906.

Q. In the meantime, you had acquired flowage rights or ownership to a large proportion of this property shown on Woermann's Exhibits 1 and 2, had you not? A. I had acquired title to all the property, tracts for title—" I suppose that means contracts, it is written tracts here—

"Contracts for title to all of the property shown in colors on those two exhibits and had made all financial arrangements for constructing the power house and dam at the mouth of the Desplaines River."

718 Later your Honor held that they would have to produce a deed, and they offered a sheet of blank paper as the deed with the understanding that they might bring it in later. Now, if your Honor please, with reference to that, I ask this: is it admitted or understood or stipulated that the title to the property in Sections 25, 34, 8 and Section 36, 34, 8, being the title to the property at the site of the dam, was acquired by the Economy Light & Power Company at this time, November 30, 1906.

STIPULATION.

719 Thereupon it was admitted by the defendant that the defendant acquired title to the property on each side of the river at the site of the dam in Sections 25 and 36 respectively, both in Township 34 North, Range 8, by deed from Harold T. Griswold on November 30th, 1906, and that said Griswold acquired title to said property on each side of the river as trustee for Mr. Charles A. Munroe and Mr. Fank G. Logan, and that the said Mr. Griswold referred to first began to acquire interest by means of contract in the spring of 1904, which afterwards ripened into title. Some titles

were taken in Mr. Munroe's name directly, but whatever was taken in Mr. Munroe's name or whatever was taken in Mr. Griswold's name were all conveyed finally to the Economy Light & Power Company by said deed on November 30, 1906.

720 EXTRACTS FROM THE REPORT OF 1867 OF GENERAL JAMES H. WILSON, PARAGRAPHS 3 AND 6, AS FOLLOWS:

Paragraph 3:

"It possesses another advantage, almost exclusively its own. The two most opulent cities of the west are found at its terminii."

Paragraph 6:

"The real importance of this improvement can only be estimated by regarding it as completing a system, of water communication between the east and the west, of which the Oswego and Erie Canals, constitute essential parts."

721 EXTRACTS FROM THE REPORT OF 1883, THE SUBWAY OF MAJOR W. H. H. BENYAURD, REPORTED IN THE REPORT OF THE CHIEF OF ENGINEERS, 1884, PART 3, APPENDIX H. H. ON PAGE 1959, PARAGRAPHS 2 AND 3, AS FOLLOWS:

"As stated in my preliminary report under date of September 2, 1882, I had intended instituting a comparison between the cost of enlarging the Illinois and Michigan Canal between Joliet and La Salle, and that of improving the rivers between the same points; but as the survey of the latter was not at that time authorized, I merely confined my report on the Illinois & Michigan Canal to the cost of enlargement throughout its entire length, and without making any change to the river route. The additional cost of the river route in the first instance would be offset by the lesser amount that would be required for maintenance, repairs, and so forth, as the long line of canal, with its aqueducts, feeders, weirs, and so forth would be a constant source of expense. The river route has also the advantage, when it is considered that we have navigation on a stream 600 feet wide instead of the narrow channel of the canal.

Looking at the matter in an engineering point of view, it is difficult to understand what led originally to the construction of the canal, rather than the improvement of the natural channel of the river. Should the Illinois and Michigan Canal be accepted by the Government, and its

enlargement undertaken, that part between Joliet and La Salle would be abandoned and the river route between these points, adopted."

On the preceding page, paragraph 4:

"The rivers have an average width of about 600 feet, with banks from 8 to 23 feet in height above low water, so that within ordinary stages the stream flows within fixed banks."

722 EXTRACTS FROM THE REPORT OF THE COMSTOCK BOARD IN 1886, REPORT OF THE CHIEF OF ENGINEERS FOR THE YEAR 1887, PART 3, APPENDIX 2, W. C. ENDICOTT, SECRETARY OF WAR, PAGE 2125, LAST PARAGRAPH, AS FOLLOWS:

"The conclusion, therefore, would seem to be clear that the United States should not be bound to enlarge the existing canal between La Salle and Joliet, if the improvement of the Illinois River between those places will furnish a cheaper mode of communication, nor to maintain any portion of the canal, the abandonment of which may become necessary or desirable in the future."

723 EXTRACTS FROM HOUSE DOCUMENT NO. 263, 59TH CONGRESS, 1ST SESSION, PAGES 8 AND 9, AS FOLLOWS:

"Present improvements. The total distance from Lake Michigan to Grafton and the mouth of the Illinois is 327.28 miles. Beginning in Chicago River, 6 miles from the lake, the Illinois and Michigan Canal extends to La Salle, near the head of navigation on the Illinois, a distance of 96.7 miles. This canal has lost its traffic to such an extent that it has ceased to produce a revenue, and is falling into decay, which bids fair to soon become total. It is barely navigable for vessels drawing 4½ feet. For certain purposes it has been replaced as far as Lockport by the Chicago Drainage Canal, as will appear further on. Below La Salle the Illinois River has been improved by the State of Illinois, with lock and dams at Henry and Copperas creeks, covering a distance of 87.7 miles, over which the State charges tolls. The remaining 136.8 miles to Grafton has been improved by the United States with locks and dams at Lagrange and Kampsville. The project under which the work of the State and of the United States was done in the Illinois River contemplates a depth of 7 feet, the locks being 350 feet by 75 feet. Much dredging remains to be done to complete this project in the Illinois

River. It was intended to extend these dimensions of waterway to Lake Michigan to replace the obsolete canal, but when the State of Illinois decided to authorize the Chicago Drainage Canal it abandoned the project for a 7-foot navigation and directed the removal of its dams in the Illinois River, at the same time demanding that the dams constructed by the United States be removed. It declared in favor of a channel to be constructed by the United States not less than 14 feet deep from the end of the Drainage Canal at Lockport to LaSalle, 'to be designed in such manner as to permit future development to a greater capacity.' (See joint resolutions adopted May 28, 1889, and May 27, 1897, copies hereto appended, Appendixes B and C.)

None of the dams have as yet been removed, but by joint resolution approved April 21, 1904, Congress authorized the Sanitary District of Chicago, at its own expense, to lower the Government dams, and on the 23rd of May, 1904, permission was granted by the Secretary of War to that body to lower the dams 2 feet, upon condition that it install such movable crests as should enable the dams to be maintained at their present height during low water and upon the further condition that it hold the United States harmless from any claims for damages which might result from the operation of these movable crests."

That is ending on page 9 immediately preceding the heading "Chicago Drainage Canal." And on page 12, the first paragraph immediately preceding what was read on the other side: " The introduction of dams in the portion of the route where dams will be required." To secure the prescribed depth as a tendency to further increase the overflow. To keep this at a minimum it is proposed to make the dams of the movable type, which shall have no effect upon the water service at low and medium stages.

Then one paragraph on page 16: "As already stated the proposed dams are to be of the movable type." For the purpose of estimates the Channoine wicket type is adopted without service bridge and without regulating bear traps. The entire width of the river is closed by a continuous line of Channoine wickets. The details are shown upon the accompanying drawings.

And on page 45, and running over on the top of page 46 is a description of the operation of the Channoine Dam. It seems to me that that was all read.

DEFENDANT'S SUPPLEMENTAL ABSTRACT.

The following is an abstract of certain depositions, testimony and other data, introduced in the case of the People of the State of Illinois *ex rel.* v. Economy Light and Power Company in the Supreme Court of Illinois, in the February Term, 1909, Number 6242, on appeal from the Circuit Court of Grundy County, Illinois, introduced in this case, in pursuance of a stipulation authorizing such introduction, on behalf of the Economy Light and Power Company, and is as follows:

DEPOSITIONS.

WITNESSES.

George Alexander,
Stephen J. Williams,
William S. Myers,
George F. Gurney,
Xavier Munch,
James Boyne,
Lewis K. Stevens,
Jacob Adler,
William S. Burt,
David Layton,
John P. King,
Adam Comstock,
James C. Kean,
Enos Field,
Urias Bowers,
Oliver S. Chamberlin,
Seneca Hammond,
Peter O'Brien,
Franklin Collins,
John McCowan,
R. W. Killmer.

TESTIMONY.

WITNESSES.

Robert Moore,
Elmore W. Bewley,
Nathan P. Pryor,
Thomas Austin Mills,
James Cornelius,
Jeremiah Collins,
Cyrus Copelantz,
Isaac W. Richards,
James G. Ellwood,
W. H. Whisler,
John McCaffrey,
J. W. Rambo,
Joseph E. McCullough,
Thomas F. Boyle,
Isaac N. Mason,
L. L. Wheeler,
Adam Comstock,
John M. Snyder,
Patrick Fogarty,
Amos R. Brockway,
Thomas T. Johnston,
George H. Munroe,
William P. Gray.

OTHER DATA.

Extract from Parkman's LaSalle and the Discovery of the Great West.

Footnote I, p. 24, same volume.

Extract from Moses' "Illinois, Historical and Statistical."

Extracts from Margry, Vol. 2.

Extract from Harman's Report to the State Board of Health, 1901.

Act of Congress of March 30, 1822, authorizing the State of Illinois "to survey and mark through the public lands of the United States the route of the canal connecting the Illinois river with the southern bend of Lake Michigan."

Act of Illinois General Assembly, approved February 14, 1823 (Laws of 1823, p. 151; Statutes of 1856, p. 419).

Act of same, approved January 22, 1829; Statutes of 1856, p. 41.

Act of same, February 15, 1831, Sec. 7, Laws of 1831, p. 39; Statutes of 1856, p. 426.

Section 13, same Act.

All the foregoing Acts being now offered in evidence in the present action.

Extract from Message of William D. Ewing, Acting Governor, dated December 2, 1834.

Extract from Messages of Joseph Duncan, Governor of Illinois, of December 3, 1834, and December 4, 1838.

Report of Canal Commissioners of State of Illinois, Jan. 3, 1825.

Extracts from "Report of Canal Commissioners of Illinois to John R. Tanner, Dec. 1, 1900."

Commrs. of Ill. pp. 73, 74, and extract from a letter of J. M. Bucklin, engineer Illinois and Michigan Canal, to the Honorable Board of Canal Commissioners of the State of Illinois, dated Dec. 18, 1830.

pp. 81, 91 and 92. Extract from letter of J. M. Bucklin, engineer of Illinois and Michigan Canal, dated Jan. 1, 1883, to Charles Dunn, Acting Commissioner Illinois & Michigan Canal.

p. 135. Letter from William Thomas, Chairman of Committee on Canals, etc., dated Feb. 8, 1837, to the aforesaid J. M. Bucklin.

p. 135. Reply of J. M. Bucklin to the above letter of William Thomas.

p. 173. Extract from letter of Benjamin Wright, Civil Engineer, to the Bd. of Commrs. of Ill. and Mich. Canal, dated October 23, 1837.

pp. 146, 147. Extract from Report of Bd. of Canal Commrs. submitted by W. F. Thornton, Pres., Jacob Fry, Acting Commr. to Thomas Carlin, Gov. of Ill. Dec. 13, 1838.

Hurd's Rev. Stat. Ill. 1908, Ch. 121, Sec. 265. Extract from Report of Canal Commrs. Dec. 13, 1838.

Certified copy of stipulation in case of Philo W. Haven, et al., v. Bd. of Trustees of Ill. and Mich. Canal.

Extracts from Report of James H. Wilson, et al., as found in Messages and documents of War Department, 40th Cong. 3rd Sess. Ex. Doc. 1, p. 2.

Extracts from Report of W. H. H. Benyaard and George

Y. Wisner, 48th Cong. 2d Sess. House of Rep. Ex. Doc. 1, p. 2, Vol. 2, etc.

Extract from "Sanitary District of Chicago, a concise report on its organization, resources, constructive methods and progress; Sept., 1903." Prepared by Chief Engineer; list of officers showing that Isham Randolph was that Chief Engineer.

Extract from Document No. 264, House of Rep.

Extract from Report of War Dept. 1900, Part V. Annual Reports of War Dept. for fiscal year ending June 30, 1900, being the Barlow Report.

Extracts from Reports of War Department 1901, Chief of Engineers, Part IV, etc., being reports of Majors Willard and Townsend and Col. Barton to Gen. John M. Wilson, dated November 17 and 18, 1900.

Extract from Report of the Ernst Bd., House Document No. 263.

Extract from Senate Journal of Ill. for 1836 and 1837, pp. 273 and 274.

Extract from "Report of Canal Commrs. of Ill. to Gov. John R. Tanner, Dec. 1, 1900."

Certified copies of record in McKee v. Canal Commrs. and Deed of James McKee and Sally McKee, his wife.

Extract from Report 1890, House Doc. No. 264, of the House of Rep. 51st Cong. 1st Sess. p. 40.

Extract from Report of Canal Trustees entitled "Complete List of States and Lands conveyed by the Trustees of the Illinois and Michigan Canal, showing size of state, appraisal sales, from Sept., 1848, to May, 1849, names of purchasers, etc., compiled by our Board Feb. 15, 1850."

Letter of W. H. Bixby, Lieut. Col. Corps of Engineers to Brigadier Gen. A. McKenzie, dated Mch. 27, 1906.

Letter of Robert Shaw Oliver, Asst. Secy. of War to Mr. Chas. A. Monroe, dated June 7, 1906.

Deed from Thomas Ford, Gov. of Ill. to William H. Swift, et al., trustees of the Ill. and Mich. Canal.

Deed from William H. Swift, Henry Grinnell and Richard Rowett, trustees, to the State of Illinois.

Certified copy of voucher of State of Illinois to Henry S. Piepinbrink, Sheriff of Will Co., covering payment of judgment in case against Slater and Druley. Marked Snyder Exhibit 11.

Snyder Exhibit 12. Voucher to J. D. A. Parks.

Certified copy of resolution of Bd. of Canal Commrs. of the State of Illinois, marked Snyder Exhibit 13.

In each instance there is included in the above offers in connection with Snyder's Exhibits the certificate of Snyder attached to each document.

Transcript from Abstract of Record of case of Druley v. Allen, Circuit Ct. of Cook County, App. 2, p. 3905.

Extracts from brief in the Appellate Court, of D. A. Parks, in said last mentioned cause.

Extracts from brief of appellant in case of Druley v. Allen, in the Supreme Court of Ill.

Extracts from petition for rehearing in same cause.

Extracts from report of U. S. Chief Engineer, 1901, part V.

Extract from Report of Chief Engineer U. S. Army 1876, part II.

Extracts from Warren Report and MacKenzie Report.

Extracts from Canal Commrs. Report of 1900.

Extract from Daily Chicago American of date of May 14, 1836, and September 14, 1839.

Opinion of Supreme Court of Illinois in People, ex rel., v. Economy Light & Power Co., 241 Ill., 290.

NOTE: The transcript paging which appears in this, defendant's, supplemental abstract is that of the record in People *ex rel.* v. Economy Light & Power Co.

1307 INTRODUCTION.

Depositions of George Alexander, Stephen J. Williams, William S. Myers, George F. Gurney, Xavier Munch, James Boyne, Lewis K. Stevens, Jacob Adler, William S. Burt, David Layton, John P. King, Adam Comstock, James C. Keen, Enos Field, Urias Bowers, Oliver S. Chamberlin, Seneca Hammond, Peter O'Brien, Franklin Collins, John McCowan, and R. W. Killmer, produced, sworn and examined on their oaths on January 16, 1908, and thereafter on days to which hearing was continued, on agreement of parties at the office of Frederick A. Hill, Master in Chancery of Will County, Illinois, pursuant to notice in above entitled suit. Said witnesses being first duly sworn, testified and deposed as follows:

DEPOSITIONS.

1312 GEORGE ALEXANDER, a witness called on behalf of the defendant, testified as follows:

Direct Examination.

My name is George Alexander.

I live in the Township of Channahon, in Will County; have lived there from the fall of 1838. I was one year old at that time; my father moved there then. I have lived there ever since, except when out in business through the country.

My home was about forty rods from the Desplaines river on the south side.

1313 That was in the vicinity of what was known as Smith's Bridge. I recollect when that bridge was put up. There were two or three bridges before that.

When I first came there my father was engaged in the building of this Illinois and Michigan Canal. He was foreman of a quarry in Section 21. I own part of that section now. I think he was foreman about a year or so after he came there. That stone quarry was right where I live, about ten miles from Joliet down the river. My home is about four miles from the site of the dam which the Economy Light & Power Company is constructing near the mouth of the Desplaines river; that is, if you take the road zig zag, on the river.

1314 My father did not own the farm at this homestead at that time. He bought it right soon after. They had paid off the work with Canal Scrip, and he bought some more and paid them in Canal Scrip; 33 cents on the dollar it was worth.

I guess he got the farm property near the time the canal opened, about 1848; I won't swear to that, but that is my opinion.

He bought forty acres first; bought a piece in Section 15, another 80 in 22 and that piece on Smith's in 21. That split that quarter section line.

The bridge is on the quarter-section line.

He died a young man in September, 1856. Up to the time of his death he cultivated the land some; was generally on public work; helped to build this feeder to the Illinois and Michigan Canal.

Since his death, I have occupied that land and cultivated it.

1315 I raised corn, hogs and cattle. I do not think my father shipped any grain to the Chicago market while he was on that farm. Railroads were not running much at that time. He hauled wheat with three or four yoke of oxen and sold it at 37½ cents a bushel; hauled it down through the country there.

After his death in 1856, I shipped grain to the Chicago market. When I was quite a young lad, I fed up and bought a good deal and shipped on the Alton and Santa Fe; that was later of course.

I never shipped any produce from that farm to Chicago by boat over the Desplaines river. I guess nobody else ever did, that I saw go up there.

I have lived all my life on this river. Am familiar with it from, say Lockport, to its mouth. I swam horses through every mile from Lockport to the mouth of the Illinois river, where the Desplaines and Kankakee go together—pretty near every mile to cross the river. We had to get across the best way we could. We had to jump in and swim.

1316 I was familiar with the condition of the river before the construction of the Illinois and Michigan canal. I was not so well acquainted right in Lockport at that time, because I was a young kid.

I remember when they took out the stone for the Channahon locks, out of this quarry around Section 21.

I was familiar with the river from Joliet down to its mouth. We used, when we were young fellows, to go out fishing nights, and would go up these riffles and pull away and go over.

There are rapids between Joliet and the mouth at Treat's Island. There is a little island there, and a pretty strong current. There was shallow water there. Little row boats could go over these rapids, take the oars and ride down, in ordinary water.

1317 Before the canal was constructed, right down at this side at Smith's Bridge, there was 1½ feet of water in the deepest part, right on my land, right on his farm and mine together. During the summer season we had freshets, back snows up north that would come down the river there.

They used to have a gorge sometimes at the mouth of the Kankakee, and that would back the water up on us.

This bridge was finished in December, 1865, and in February, 1867, I think, there was a gorge down there and this bridge

was not anchored and the water came up enough to go over the piers.

Not during my recollection was it ever possible, before the construction of the canal, to run boats up and down at the point where the Smith bridge is located; boats for commerce, carrying passengers or freight.

Q. Has there ever been a time, Mr. Alexander, when boats for purposes of commerce ever actually ran up and down that river, between Joliet and the mouth of the river, within your recollection?

Objected to by counsel for complainant as calling for an opinion and being immaterial, incompetent and irrelevant.

1318 A. No, sir. No boat running up there, and nobody else has.

Q. You never, in your lifetime, saw any boats running up and down the river between Joliet and its mouth or between Lockport and its mouth, for the purpose of commerce, carrying freight and passengers?

Objected to by counsel for complainant, for same reasons as last previous objection.

A. No, sir, I never seen it and nobody else has.

Q. From your knowledge of the river, was it ever possible to run boats up and down that river between Lockport and its mouth for commercial purposes?

Objected to by counsel for complainant as irrelevant, incompetent, immaterial and calling for the opinion of the witness.

A. Not in the Desplaines river, no, sir. Ran boats in the canal.

There is a riffle above Smith's bridge; it was not possible for boats to go over that during summer season, unless they made some improvement. I have never seen it only in seasons of high water.

1319 According to my best recollection, that is true also of the riffle and rapids at Treat's Island. Hunters used to go down there in skiffs and camp; put up tents. There were no boats that went up and down it.

There is another riffle in the Desplaines down below Smith's bridge, at Whitmore's place. No water down there over two or three feet at any time. The mouth of the DuPage runs into the Desplaines right there. The water was pretty swift at that point. It took a good man to pull a boat up stream. It could be done in stages of high water. I pulled a skiff over

there; of course it was pretty hard work. We would go up there hunting ducks.

Q. Was it ever possible to take boats up there for commercial purposes, carrying produce or passengers over that riffle at any time?

Objected to by counsel for complainant as incompetent, irrelevant and immaterial, and calling for the opinion of a witness who had not been qualified so as to base an opinion.

A. No, sir; not in my recollection, never was.

I never in my lifetime saw a boat or knew of a boat carrying passengers or produce from market going up that river, and nobody else did in that country.

Never heard of any such boat going down the river, outside of what I told you of the men going out for a little time in the boat and float down the river. That was just a skiff—boats going out for pleasure purposes; at certain times the skiff could only go in certain places in the river.

In the summer time during ordinary stages of water a well-loaded skiff could not go over those riffles.

They had a stage route from Chicago down through La Salle.

They used to make stands there at Channahon.

1321 Q. Were the supplies that were used by the farmers in that vicinity that were obtained at Chicago, obtained over that stage route?

Objected to; incompetent and irrelevant.

A. I don't think they were.

They drove teams. Had a little wheat or something and took it to Chicago and traded it off for supplies and brought it home with teams.

I never, in my life, heard of any supplies or produce being brought from Chicago down to that vicinity in boats on the river.

I remember the aqueduct that is located down near the mouth of the river, at the point where the old Kankakee feeder is. They built it right about the time they finished up the canal; if I remember right, the canal was navigable in the fall of 1848.

1322 It was somewhere in that neighborhood that the canal began operations. I remember that some large stone were used in the construction of that aqueduct. They came off of this piece of land that Smith and I own, in Section 21, belonging to the canal at that time, off Smith's farm.

There are big quarries on the side right west of me in Section 21. I saw them hauling them; rode on the teams that hauled the stone down to the Aux Sable. Those stones were conveyed down to the aqueduct by horse teams and ox teams; any way to get them there. Forded the river above the Smith bridge. I rode on the wagon.

To my knowledge none of the stones were conveyed down the aqueduct by boat.

1323 Q. Would it have been possible to have conveyed them down there by boats, from your knowledge of the river?

Objected to by counsel for complainant as incompetent, irrelevant and immaterial and calling for the opinion of the witness.

A. No, sir. Not without a great deal of work and improvement there.

In that state, the river as it was then, it would not have been possible. I am pretty sure that not any of the stones used in the building of that aqueduct came from Joliet.

I say they did not; that is right.

There were a few stones picked at the mouth of Prairie Creek that runs into the Kankakee, but the majority of the stones came from our quarries, where Prairie Creek goes into the Kankakee.

1324 There was a quarry started there, and they used a great deal of the stone when they built the dam across at the mouth of Prairie Creek, 40 rods below the mouth, and there was a few stone used in building that lock there.

I remember dams in the river when I was a young boy. I do not think that I know of any prior to 1848 before the completion of the Illinois and Michigan Canal, but there is a dam right near Mr. Mills.

There was a dam kind of west of where the Economy is now constructing a dam; the dam they ran their mill with. I saw that dam over there, across, below it. That extended clear across the river. There were not any locks in that dam. They had a race there so they could get power for the mill. It was a closed dam all the way across.

1325 I do not remember when it was built. My father and me went down there. I would not say that I remembered the existence of that dam prior to 1848. I do not know whether it was there before 1848 or not. I was born in 1837. In 1848 I was 11 years old.

I remember the dam that was on the north branch of Treat's

Island. They had a race right across there that ran into the mill there. That was on the north channel. That was pretty much a closed dam clear across the channel. It was not a very big dam. There was no provision for any boats to go through there.

1326 I do not remember about the time when the dam at Treat's Island was constructed. It was before 1848 though, because I knew they had a corn grinder there and we used to take corn from home and go there and have it ground. I think I saw that dam at Treat's Island before 1848.

I do not remember any other dam in the river prior to 1848, besides the Beard's dam and Treat's Island dam.

I do not remember the existence of a dam in Joliet right above the Jefferson street bridge, prior to 1848, but they had that dam to lack the water to run down and feed the canal.

They had that dam for the levels of the canal to cause the water to run down.

1327 The dam has been there since my earliest recollection.

I do not remember the existence of any other dam in Joliet prior to 1848.

I remember there was a dam called Haven's dam, near Wallace street. It was a grist mill.

I rememer the existence of a dam in Joliet where the plant of the Economy Light & Power Company is now. I saw it there—I do not remember when they built it. It was built there at an early date.

Q. You know it was there from an early date; that is at Jackson street in Joliet, that is called dam number 1, was there a dam at that point where dam number 1 is now, since your earliest recollection?

A. Well, I told you I was a young lad. I did not have much business around Joliet. I was around the vicinity, I remember, and knew what was going on, but I think there was a dam below where there used to be a grist mill.

The WITNESS. I do not know what they called it. They used to grind corn and make flour there.

Prior to 1848 the people had to go across the river the best way they could. Some places they could ford it, and when they could not, they went over in boats.

1328 There was not any bridge in Joliet until you struck Morris and the bridge at Morris was over the Illinois River.

Q. Have you forded the river between Joliet and the mouth prior to 1848?

Objected to as leading.

A. I drove a hundred head of cattle across and swam the horses after them.

Prior to 1848, before any bridges were constructed, there was a ford down where Brandon's bridge is. It was not a very good one. It was not a very safe ford, and you could ford it there at Treat's Island; go across the south branch and go across the island and ford the north branch, and then they used to ford across where the DuPage runs into this branch. That is all there was over there. Then that ford in this Beard's dam; below Beard's dam.

I do not recollect any bridges across the river below Joliet prior to 1848.

1329 We put up a bridge there where Smith's Bridge is, as you call it—a frame bridge. It was not there a great while before it went down with a load of grist and a pair of horses, and we put in another bridge and then in '65 we let the contract to F. E. Hinckley and they built this covered bridge there, that is Smith's bridge.

The first bridge built there I think was built along in the 50's—1852, somewhere along in there.

That was about the first bridge across the river, below Joliet, that I recollect. I do not remember when it was put up. I do not know exactly what year it was put up. There may have been some bridges in Joliet before that time.

These early dates I cannot give as correct as what happended later.

1330 The several fords that I have mentioned back before 1848 could be used at all times during reasonable weather in the summer time, except during a freshet. Were two fords at Millsdale, and one across by Mills House; another one of them on the north branch struck the Island, and there was one at the foot of the island.

This bridge that was built at the point where Smith's bridge is now.

The first bridge built at that point was not a swinging bridge so that steam boats could go through it.

I am familiar with the various bridges that have been built in recent years across the river between Joliet and the mouth of the river. I do not think any of them are closed now. They are not swinging bridges, all iron bridges now.

When I said closed bridges, I referred to whether they were covered or not.

The one we built in 1865 was a covered bridge, sided up and roofed over. It stood there until about 6 or 7 years ago; the abutments began to fail. It would have been standing there yet if it was let alone.

1331 I remember that on this Davidson property the river was fenced clear in, and there was across that bridge, over Brandon's bridge, right across Brandon's bridge on the river, I remember there was a fence laid clear down on the river quite a ways, but I did not pay much attention to it. That was at the south end of Joliet.

Q. Don't you remember that there was a fence for many years across both channels of the river at Treat's Island?

Objected to as leading.

A. I don't. I know Treat's Island was fenced.

Q. Why?

Objected to as incompetent, irrelevant and immaterial, calling for opinion.

A. Because otherwise cattle would cross over in there and eat the crops.

The fence on Treat's Island was right around there so as to keep the cattle from crossing the river and getting on the island and eating up the crops.

A considerable part of the land that my father owned and that I now own, was on the bank of the river. It ran down to the river.

1332 I did not fence the land down to the river, because the part where we owned was in a bog. There is quite a little lake around there before you come down to my place and the water was deep and the cattle very seldom swam there and we did not put any fence along the river.

Our fence at right angles to the river ran out in the water a ways.

Q. Did the farmers all along the river below Joliet fence their lands in the same way?

Objected to as leading.

A. No, I don't think they did.

At Whitmore's there is a regular fence along there; that used to be all opened, and they fenced up the DuPage.

When the farmers did have fences at right angles to the river, they ran them down to the water's edge and out into the water a piece so stock could not go around.

There were very few fences there in 1848.

The land along the river in Section 15 and this piece
1333 in 21 and a quarter section in 22, we got hold of. I think Mr. Glynn, an uncle, came there soon after that. My father got killed in 1856, and I fenced the land in myself shortly after my father's death.

1334 We used to have old log canoes and boats built out of the siding and some out of plank—skiffs carrying 2 to 6 men. We used to have these little Indian canoes, just to carry two in, if we would sit still. Those were used for transportation of people that had no other way of going across; did not have horses.

Cross-Examination.

I was born on the 27th day of October, 1837, seventy years old last October. I have lived right in the vicinity of
1335 Channahon, during all that time. It is built on a line between Sections 22 and 15. That is the farm that I have described in my testimony. When I was a year old, my father moved there; have lived there ever since. Have been travelling around a little bit, but that was my home. I have been a jack of all trades, from farming I have been a stock raiser, and raised hogs, cattle and horses, and buy and sell most anything that comes along. My business has taken me along the course of the Desplaines River quite a good deal. I had control of three-quarters of a mile of it, from this bridge of Smith's up to the next neighbor's farm above me, and the river runs pretty near in a southwesterly course from my lands, and makes it a little longer, I guess. I have been
1336 over it hundreds and hundreds of times, thousands and thousands of times from my place to Joliet, down to Morris and all along the line. Of course when I go to Morris, I go out of the Desplaines river latitude. I don't know a great deal about the Desplaines river above Joliet. I drove cattle to Chicago forty-five or fifty years ago this last fall, before the Alton railroad or the Rock Island railroad was built. I forded the river above Joliet and Lockport and through that country. Aside from the occasional fords, I have not been on the river to amount to anything. I was not so much acquainted around Lockport, but from Joliet down to the mouth of the Illinois river, I was well acquainted with it. I forded there above Lockport, but I was not up there all the time. The
1337 testimony I have given in my examination in chief refers to the river below Joliet to the mouth. I would know

more about that than I did further up. I was not so much acquainted, being a young fellow at that time. Of course my business would not call me up there. My only experience with the Desplaines river between Joliet and its mouth has been that I have crossed it occasionally with cattle at the fords, and crossed with boats and other ways. I know right below my house, where there is a kind of a little lake from Mill's Island down to this bridge of Smith's, I went out
1338 there and took a rope and sounded it down there, and we got 14 feet of water in one spot. That was right opposite my land up above the house, and then you go down 80 rods and you could walk it with good high boots.

We used to go in a boat at night and catch a lot of fish, at the places where we found the depth of the water varied a good deal, some places a foot and a half and some places six feet. I can't say that I know how deep the water has got to be, in order to get navigation for commercial purposes. I know it depends a little on the size of the vessel, and how you load it. It has to be 6 or 7 feet on the Mississippi river. I shipped down there to St. Louis and Memphis and Cairo. It is my opinion that in order for the stream to be navigable for commercial purposes, the water must be 6 or 7 feet deep.

I am not giving this as an authority, because I am not
1339 an expert on it. I was basing my answers as to the navigability of the Desplaines on what was asked me. I was asked if I saw a boat carrying anything, and I said I did not and nobody else did round that country.

They commenced using the canal in 1848. Between the date of my birth and that time, I was digging around trying to make a living the best I could. I drove the first repair boat on the Illinois and Michigan canal down below Channahon. There was a slide sloping off to the river. They had a lot of stone right down across the river. They kept sloping it down and have repaired it for years, but I guess they have got it solid now. Trees are growing through it.

1340 My father did not spend much time farming. I ran a few months on the repair boats, and drove team. My father was boss on there, but as soon as I got a little bit bigger he put me on the farm and I run the farm. He went down on the Iron Mountain Railroad. He built twenty miles of that through St. Louis. The first railroad built through this country was the Alton. I guess it was built along in '58 or '60. I drove oxen for a fellow through Hampton, below Elwood, over the land where they put the railroad through. I didn't do

any work on the Illinois and Michigan canal before 1840. I ran errands for the boys before the canal was finished. I did not in 1840, I was only three years old then. I commenced that sort of work when the canal started up the second
1341 time, I think about 1843. They shut the canal down once. I used to run errands when they were working in the quarry. They would send me over to Channahon for tobacco or some other thing, and I used to wade the river. I was about seven or eight years old at that time. I commenced to work on the canal under my father about 1850, I guess. The canal was running at that time. It commenced to run in 1848. It was in operation at the time I was working on it. I
1342 know they used to ford the river and haul stones across to the Channahon locks, and from the DuPage river, haul them to the Aux Sable locks. They built those locks out of stone. The stone was taken down by horses, I guess a team, hauled down by wagons. A part of the stone in the Aux Sable locks came from Smith's. I know practically where it all came from. The biggest end of the stone came out there
1343 at the aqueduct and was hauled from some place down there. All kinds of stone, one ledge that was 4 feet thick and some that was lighter. It is not a fact that the locks at Aux Sable and the aqueduct, are built from sandstone taken from quarries near Aux Sable, and if it was, it was built from sandstone that came out of a little ridge at Solomon creek. That is the only sandstone works around there that I know of, but those Aux Sable locks had to be torn down, and they brought stone from Joliet and rebuilt them, not a great many years ago. I said that none of the stone used in these various improvements down there at Aux Sable, or at any other point below Joliet, came from the Joliet quarries. I know that because the Joliet stone is a different kind of stone from what they used there. I had been right there when they were building the locks and saw the stone hauled. I was about 5 or 6 years of age at the time this stone was taken down.
1344 You could notice the stone for forty years afterwards. The stone showed for itself. I base my knowledge that they did not use any stone from the Joliet quarries there, upon the fact that the stone is not of the same character as the stone that comes from Joliet quarries, and upon my experience. I have been along there when they were doing all this work when I was a "kid." Prairie Creek is right up the Kan-
1345 kakee river towards Wilmington in a southeasterly course. I did not say that part of the stone used in im-

provements at Aux Sable come from there. There might have been a few stones put in the aqueduct, I mean the aqueduct at Dresden Heights; the abutments are there yet I guess. Of the rapids in the Desplaines river between Joliet and the mouth, there is one at Brandon's bridge, one at Treat's Island, one where the DuPage enters into the Desplaines. The one at Whitmore's farm and the mouth is all together where the DuPage runs into the Desplaines. There is a good strong river at the mouth of the Desplaines. There are five
1346 rapids between Joliet and the mouth of the Desplaines river. Sometimes the water in those rapids is deeper than at others. Sometimes if you had a good pair of boots, you could ford it without getting your feet wet. That would be in July, August and September may be. Three months it would be so shallow that you could wade across it with your boots on, a little more than a foot. There would be spots in there maybe a foot and a half deep. The current always drifted to the south side of the river, that was
1347 the deepest channel. I should think there in the deepest part of it, at all times of the year, there was as much as 18 inches of water in the channel at that rapids opposite my place. I think the channel would be pretty near 40 feet wide there. The north side of the river sloped off, it is smoother, goes out gradually. At the lowest stage of water, at the rapids at my place, on my side of the river, there was a channel about 40 feet wide, with an average depth of 18 inches, somewhere along about that. Down at Whit-
1348 more's Bridge, it was a little deeper than at my place, 2 or 3 feet, or 2½. As near as I can guess, in the channel it would be that deep. At Whitmore's the channel would be all of forty feet, I got the feed from the Du Page river there. At every one of the rapids, mentioned, with the exception of Treat's Island, there was a channel of a width of about 40 feet, with as much as 18 inches of water all the way across it at the lowest stage of water in the Desplaines River. I think that is about right. Treat's Island with reference to my place, is about a mile and a half or two miles northeast. At Treat's Island I generally went on horseback when I forded it. I waded it a few times. It might vary as much
1349 as a foot and a half in the deepest part of it. I think there was a foot of water there. I don't know as I can tell you if there would be a period of six or eight months of the year in which the water on all of these rapids, would be

over two feet in the channel. I did not keep track of it, but some seasons it kept a good deal lower than at others. It depends on the weather. I think there was always 18
1350 inches of water in all of these rapids, excepting at Treat's Island,—for a short distance of course. This depth of water of 18 inches on all of these rapids, for a distance of 40 feet in the channel, at the lowest stage of water of the Desplaines river, existed prior to and after 1848. At Treat's Island there at the foot, I should say the length of the rapids up and down the river, was about 40 rods. At the upper end of the Island, there were two branches. We crossed one branch and got over to the island, and crossed the other branch and got over to the other side. The rapids came out on each side of the island.
1351 There was a channel on both sides of the island, and there was not much difference in depth. On the south branch the water would be as deep as 2 feet for four or five months of the year, this before 1848, but I guess the north branch would not go that depth. The channel in the south branch would be 40 feet. I think prior to 1848, there was a channel in the south branch of the rapids at Treat's Island 40 feet wide, and containing as much as 2 feet of water for a period of five months in the year.
1352 There are places there in the Desplaines between Joliet and its mouth, where it was not deep enough to run much of a boat; they had to get along there with a light boat. The water was deeper at all places between Joliet and the mouth of the river, than it was at the rapids I have mentioned, a little kind of lakes formed. It was wider and deeper.

Brandon's dam that I spoke of was outside of the mouth of the Desplaines river, I think six rods maybe. That was put in there a long while ago. I think it was put in after the Illinois & Michigan Canal was built. I ain't going to swear to that, one way or the other. I think the canal had been
1353 in operation before Beard's dam was built. Anyway it was built about the same time. The next dam that I mentioned was at Treat's Island. There was a little dam put across the north branch. Had a race to run the water down to run the sawmills. It was only a temporary fixing across the south channel. They put a good dam across the north branch. I don't think that was built after Brandon's dam was built, as long as I can recollect. Mr. Treat built it.

The next dam up the river, I think Malcolm run this across,—the mill below McDonough street. I don't know when that was built. They had a wheat mill there and had wheat ground, when I was quite a chunk of a boy. If it was built after the Illinois and Michigan Canal, it was quick after it. I know I took grist there when I was about ten years old, and I am now about seventy. I don't know how long it had
1354 been built then. Malcolm run it. According to my memory, the next dam up the river, was right here at Joliet. I don't know when that was built. I know they had it built before the canal was in operation, because they had to have a feeder to have this water come down here. I think it must have been built about the time that canal was, because the canal crossed the river and comes over on the other side. I suppose it was built for the purpose of supplying the canal with water and power. Norden & Company built this dam here where the electric power is now. I don't know what year that was built in. I think it was built after the canal was in operation. I am not positive about it, but my opinion is it was. It was my father shipped the grain. He hauled it up with yoke teams somewhere in the 40's, about '48 or '50, somewhere in there. I don't know that it was after the canal was in operation. They run grain up the canal pretty quick after they got it open. When I came to operating the farm, I usually shipped grain to Chicago by railroad mostly. I fed most of the grain I raised for many years and then bought a good deal. I never saw boats pass over the Desplaines river prior to 1848, and I did not see anybody that did. I know ever since I was big enough and got along the river hunting ducks and the like of that, there was no boats
1356 running in my time after I got big enough to get out. I guess I wouldn't remember what occurred on the river from 1837 up till 1845. I don't know that no boats ever did go down the Desplaines river carrying feed prior to 1848. I know enough old settlers around there and could get information about the matter, and as an individual I could see them going down. But they did not go down, and you can't produce a man in this state that ever saw one go; that
1357 is my opinion. I don't remember as I ever saw a fence across the Desplaines river. The fences extended down into the river apiece, and did not run parallel with it. They did not run all that way across it. Wherever the water
1358 was any depth among the riffles, they had fences along the river bank, I mean parallel with the river. At

Glidden's on that farm where Mills is now, they had a piece on the south side of the river that had a fence all along so the stock could not go across. That was to prevent stock wading and crossing the river and getting into the crops of the other farmers there.

Re-direct Examination.

The locks at Channahon were rebuilt somewhere about 12 or 15 years ago I should judge, and the locks at Aux Sable were also rebuilt about 10 or 15 years ago. At the time these locks were rebuilt, Joliet stone were used. They
1359 brought them down a canal. When I testified that the locks were built from stone taken off of Section 21, I referred to the original construction before the canal started at all. I have taken a boat up the channels that I spoke of where the rapids were. Sometimes I would row it up, but most of the time I would push it up when we were fishing nights, to go out and push them right along ahead of us. The boats that were taken up those rapids were taken up that way most of the time, unless it was low or when the current was very strong. I have been up through the rapids at Treat's Island. I have rowed a boat up through there after I got over the worst patch. There is a little piece in that lake very swift for a while and then they ease up a while, but after we got to the bend of the island there was forty rods over there that was real swift. We pushed the boat up part of the way and rowed it up
1360 the remainder of the way. We did not go there a great deal to fish. We would go where it was full, and if so, we would get all we wanted. It would be one trip up and back. Where these channels were in the rapids, there were these niggerhead stones all along in different places. I used to pick them up and carry them to the place where I forded. We used to pick them up and fill them pretty well up, so we would have to clear that out once or twice a year.

Q. Was it possible to step from stone to stone and across at those fords without getting the feet wet?

Objected to as leading.

A. Well, it was not down in our place, quite. There was space where there was a big channel you could not quite step over.

At these various channels where there were rapids, I saw

it, a good sized stone would be sticking up out of the water and some sticking up and some under. I did not mean at these rapids there were channels forty feet wide that were entirely clear from stones, so that boats could go up and
1361 down without hindrance. Could not go up there, stones all the way, a tough match to get a skiff up.

Q. These channels were filled with stones, some sticking out of the water and some under it, so it would be impossible to navigate it; isn't that true?

Objected to by counsel for complainant as leading.

A. Yes, sir; that is true.

STEPHEN J. WILLIAMS, a witness on behalf of the defendant, testified as follows:

1362 *Direct Examination.*

My name is Stephen J. Williams. I reside right opposite Romeo in the Township of Du Page. Romeo is the next station above Lockport on the Desplaines river. If I live until next September, I have lived there about 63 year, I think. I am going on 63-64 years. I was born in that same place. My father lived there before me. He was one of the contractors on the Illinois and Michigan Canal a long while ago in '36. He lived there long years, I don't know how many, I think 53. He lived there until he died. I think I heard him say he moved there in '34. My business is farming and raising horses and cattle. I have about six or seven hundred acres. I think Romeo is about three miles from Lockport, about seven miles from Joliet. I am not familiar with the Desplaines down to its mouth from my home. I am familiar with it right around in our country there. I never went very much south down that way. My business did not call me that way, but from Lockport up I know all about the Desplaines river. I am not familiar with the Desplaines river any further than Joliet. I never went down that way. I went down to Channahon to buy a few cattle, never paid any attention to the river. My going back to the early days when I was a young boy, there were no dams in the river in our country. I don't know anything about the dams, only about the river up in our country. To my knowledge the river up in our country has never been navigated by boats carrying freight or passengers, never

to my knowledge. I do not know of any navigation of the river up above Lockport for commercial purposes. My home was right on the bank of the river. The cattle used to run back and forth across there all the time. I never heard of any boats going up and down the river at any time with passengers or freight.

1365 Q. From your familiarity with the river above Lockport, I will ask you if it would be possible for boats carrying freight or passengers to be navigated up or down that river during ordinary seasons of the year?

Objected to by counsel for complainant as calling for the opinion of a witness.

A. I don't see how a boat could come up that river. It wasn't deep enough.

The biggest boat that I ever saw on the river in my life is, sometimes we used to get a boat to row around and spear some fish; two or three of the hired men used to go down there and spear fish there; that is the only kind of a boat I ever saw on the river.

Q. Were there any rapids in the river above Lockport that you are familiar with?

A. No, I am familiar with the whole river from Lockport up, but there was never no place the water wasn't deep enough.

The WITNESS. There were fords in the river above Lockport. We used to cross at Romeo and there is a ford there yet. You could ford any place there. The water was

1366 not deep. Some parts of the summer you could walk across without wetting your shoes; in the spring it is deeper during the flood season, but since they turned the water the other way by digging this canal, the Sanitary District Canal—it has made the river a little deeper, but then we cross all the same. Before the time the Sanitary Canal was built, it was a good deal shallower than it is now. Lots of riffles we could cross up above Lockport during the summer season without getting our feet wet.

Q. You don't think it would be possible during that season of the year to run boats up and down?

Objected to by counsel for complainant as being argumentative.

A. Well, in the summertime, you couldn't get a plank down there.

The WITNESS. It was a pretty good current there when it

run. I don't know of any dams in the river above Lockport or at Lockport.

1366 Q. Did you know of the Daggett mill at Lockport?

Objected to by counsel for complainant as suggestive and savoring of cross-examination.

1367 A. Why, certainly. We used to take our flour down there take our wheat down there to get it ground.

It was that mill then. Dr. John F. Daggett.

They had water power there.

Q. Wasn't the water power produced by the dam that crossed the river at that point?

Objected to as leading and suggestive.

A. The water that they used there to run that mill looked to me as if it was always coming out of the canal from Norton's mill. The water from the mill that he had in Lockport, right down there, and they had a race.

That is the way it looked to me, although I never took much pains to look that over.

I do not believe there was ever a fence across Desplaines river, above Lockport, within my recollection, but it seems to me that Mr. Alderman put a fence across there once, but I would not be positive. We were going to put a fence across there.

Objection by counsel for complainant, to the witness stating what they were going to do.

1368 The WITNESS. You see, in the spring of the year when the water raised there for a while, it would take the fence away; that is, the ice would take the posts away. We could not put any posts there because it is all rock bottom, unless you would drill a hole down in the stone, and we thought we had better not put a fence there, because when the river broke up in the spring, the ice would lodge on the posts and destroy the fence.

This fence that may have been built by Mr. Alderman was not a bit further than my land runs. There is a jog there in the section, and Alderman owns east of me on the north.

It was just above my place, only the fence between me and him; only you know his land protruded further east than mine.

Q. State whether or not above the river on your own land, or on your neighbor's land, or on any farms above the river or the farms that ran down to the river, whether the

fences were built at right angles to the river and ran right down into the water?

Objected to as leading and suggestive.

A. I could not say positively it was.

The wires were stretched across the river.

1369 The fences were put there before the Sanitary District built that ditch there; that is what I think, I would not be positive, but it seems to me that that was the case. There is no fence here now. There is a bridge across the river running to Romeo. We had to drive across the river last year and had to ford the river with the grain and everything. I do not remember any bridges across the river there, or elsewhere, above Lockport, dating forty or fifty years back; no bridges at all. I recollect only one bridge in that vicinity and that was the Illinois and Michigan Canal bridge at Romeo.

When I was a boy ten or twelve years of age, produce was shipped from the farm to Chicago by boats on the canal. The first railroad was the Chicago & Alton. That was built a good while after that. I cannot tell exactly when it was built.

1370 Before the railroad was built and after the canal was in operation, we traveled between Chicago to Joliet on packets on the canal. There were two lines of packet boats running back and forth; one line they called the "Red Bird" and the other the "Green Bird" line of packets.

Cross-Examination.

I was born in 1846, on the 22nd day of September, right on the same place where I live to-day; across from Romeo, in the Township of Du Page, right across the line from the Lockport line, which separates that town from Du Page Township, within 80 rods of where I live,—all in Will County.

By occupation I have been a farmer, stock raiser,
1371 and dealer. That is what I have always done. My home is about 200 rods from the Desplaines river in Section 34.

I do not know any of the gentlemen interested in the Economy Light & Power Company. I said that in certain seasons the water in the Desplaines river was very low, so that in places where the riffles are you can step from one cobble stone to another and across, without getting wet. That is just right. In other seasons of the year, it was pretty deep, speak-

ing of the water on these riffles. Take it along about
1372 the time of the breaking up of the ice, the latter part of March, it might be for a couple of weeks shallower, and then other times a good deal higher, but it would soon go down; it would not last long. On those riffles for a while after that it would be up to the horses' knees, may be a little bit higher. By that I mean one and one-half feet, or two feet, along there, about that, on the riffles.

It was lowest along in the fall, July, August and September. It would not be very deep on the riffles in the winter, or when the ice was formed, a couple of feet. I think, if I recol-
1373 lect, the riffles were ordinarily the shallowest places. The way it was, the shallowest places would be supposed to be right here (indicating), there would be a place, probably reaching so (indicating) that would be deeper, and then would come up again and go to low water again and be another hole in there in the river. Where the riffles were was the lowest sheet of water. The other part, where the riffles were not did not amount to so much. It was in holes. We used to, when I was young, take the horses down there and wade them in the deepest places and wash them off, and I know some of the holes used to come up to the horses'
1374 sides. That would be four or five feet deep. I do not know the river below Joliet.

I never saw boats on the river up there; I mean boats that would carry merchandise or passengers. I mean boats that people would want to take, the lumber from Chicago. I have seen lots of boats that would hold a couple of men around there that would be fishing, but I never saw any boats bigger than that. They were fishing around the holes.. They
1375 would take their fishing hooks and sit there and fish. I saw that a good deal. We waded in when I saw a boy. The hired man went down there. They had gotten hold of what they called a jack and had it filled with some kind of bark and lit it and I went along and carried the fish. Every one of them waded along the river and speared fish, and we stayed there until 12 or 1 o'clock at night.

Q. How deep water is necessary in your judgment for navigation for commercial purposes?

A. Now, sir, I just give up that job. I know mighty well that it would not carry much of a ship up there. I think an ocean liner would have no use there at all. I think Evans would have no use up there.

Suppose a boat was 30 feet long and 10 feet wide,
1376 carrying five tons of freight,—I have not got the least idea in my mind how much water it would take to float that kind of a boat; I do not know how much it would require; that is not in my business.

As to how far back my memory serves me, I recollect the day my father went to California, in 1850. I was born in 1846 and was four years old then. I would not recollect about boats passing up and down the river at that age, but I recollect the packets because they used to blow the
1377 born for Jim Templeton to open the locks. The packets ran on the canal as long ago as I can recollect. I do not know when the old canal was finished and ready for operation. I think there is more water now than there used to be. I refer to the water thrown in from the Drainage Canal. It is confined to the west more, it used to be spread more. The river used to be wider than it is now; that is in the spring, when the freshets would come, it used to be wider. Now it is in the regular channel.

There is an island right where I live and the river spreads, and goes to each side of this island, and the main river there, after it goes past the island, I should think it
1378 must be 150 feet. I do not think it is 350 feet wide. I know the Drainage Canal in the rock region, up here in Lockport. The channel there, I think it is 100 feet wide. I think the river was about one and one-half times as big as that; and if it turned out that the Drainage Canal is 160 feet wide, and the river was a half wider, that would make it 240 feet. I never measured it. I am just speaking of what it seems to me. Years ago, before the canal was dug there, to the north of me, it was a good deal wider. It was spread over more territory, because the river used to spread toward the east, and this water came down there. I think now is just about the way it used to be.

They dug the channel along there and the drainage bed is right in the middle of the river, to keep it from spreading. I think at this time that since the Sanitary District has put in the Drainage Channel, and throws the water in the Desplaines river, the river now is about the same width
1379 as it used to be in the early days. I do not think that the amount of water is the same. I think it is a little deeper now. I would think it was probably 8 or 10 inches.

I said in the first instance that I knew of no fences across the river. I think that there was one fence in there. I am

not quite clear about that, I would not be positive. My father had a fence right alongside the river, running parallel with the river, I should judge two rods or so from the river. It
1380 might have been a little bit more. That is the only fence I have any distinct recollection about. That did not cross the river. I am not at all sure of any fences crossing the river. I know about other people having fences within two or three or four rods away from the river, running along with the river. I know of other fences that were two or three or four rods or more away from the river. The fences would run for a number of yards in a straight line and then the direction would change a little for several rods again, in a sort of meandering way along the edge of the river. None of them pretended to follow the water line, just followed as near the river as they dared to go. My father's
1381 fence I think was built about war time, along about 1861. That is the only fence that was there, and Chris Corrals adjoined our land. He built a fence. Those are the only ones I know of. It might be there was on above that, but I am not certain.

1381 That was the state of affairs about 1860 or 1861. The fences got dilapidated when the ice formed and took away the posts and wires, and we had to stop it. I am talking of the fences that ran along the river the same way the river runs; that ran lengthwise with the river on the bank. The two fences that I have mentioned are the only ones that I have any recollection of. I never knew of any more, at that time.

Re-direct Examination.

1382 Those fences were built along the river to keep our cattle in pasture; otherwise they would have strayed away and got on the land of somebody else across the river. These riffles that I talked about in the river above Lockport, I did not say that in them the water during the low season, or when it was at its lowest, would run over one foot to two foot in depth. The lowest in some places you could walk across in your slippers without wetting your feet. That was along in the fall there. I do not know as I could
1383 tell how it would average during the entire summer, after April or September. Sometimes the water was not in any place except in those holes. You could look between the stones and see the water running down. That would not be the condition of things during the entire summer. Some-

times both channels would be running. There are two channels there; one on the east and one on the west. These two would run some of the time, and there would be eight or ten inches of water in them, and after awhile they would dry up. There would be more than eight or ten inches of water in the shallow places, sometimes in May. In July, August and September it was dry time, but sometimes there used to come up a big thunder shower up north where there would be more water come down just for a short time. It only
1384 lasted two or three days. After that it would come down to the old thing. When the water was high, you could not see any rocks there. There was one rock right near the bridge. When this high water came on, I could not see that rock. I watched that rock, and could see the water come down along the side of it. There are not so many big rocks there. There is once in a while a big boulder, but there are only a few boulders.

1385 WILLIAM S. MYERS, a witness for defendant, testified as follows:

Direct Examination.

My name is William S. Myers. I live in Lockport. Have lived there since the 18th day of May, 1841. Was born October 29th, 1815. When I came to Lockport I clerked for a Mr. Norton, before I went into the mercantile business myself, in 1843, and went out in 1859. Since then I have been dealing in real estate, somewhat. I live right near the City of Lockport. Have lived there since 1841. Was in St. Louis about four years in business for my brother-in-law. The Desplaines river runs at or near the outskirts of Lockport. I have seen the Desplaines river very frequently. Never
1386 swam nothing bigger than little row boats there. Never saw any freight boats, or boats carrying passengers. To my knowledge, no boats used for commerce ever ran up and down that river. Never heard of any boats used in commerce running up and down the river. Never heard of anybody navigating the river down to the mouth from Lockport. In 1841 people got into Lockport from Chicago by four-horse stage. That was the only public conveyance until the canal was finished. I do not know the name of the stage line. It did not have any special name. Produce was brought from

Chicago by wagons and sleighs. If produce went from Lockport to Chicago, it went by wagons and sleighs.

1387 I am not familiar with the different shallows and riffles in the river.

There was a dam in the river there at the mills, and Mr. Norton, for whom I clerked, had a mill there at that time. There was no provision in the dam for boats to go up and down. I do not know when the dam was built. Mr. Norton had been there some years before I came. Shortly after I came to Lockport, merchandise was brought from St. Louis up to Ottawa by water and hauled from Ottawa to Lockport by wagons. The first merchandise I bought, I sent to St. Louis for. Went down to Ottawa in two-horse wagon, took the steamboat at Ottawa, bought all the goods I wanted in St. Louis, got it shipped on the steamboat and came back to Ottawa and from there to Lockport they were hauled by wagon.

Q. Was that the method that all dealers in Lockport

1388 used to get their goods from St. Louis?

Objected to as leading and suggestive.

A. Yes, sir.

Q. Was that the usual method of bringing goods from St. Louis?

(Same objection.)

A. The only method that I know of. I first went to St. Louis and bought goods in the spring of 1843.

I do not remember any dam in the river in 1841 besides the Norton dam at Lockport. There might have been some in Joliet, but I do not know anything about them. There was a bridge across the river from Lockport over to the bluff on the other side; that was existing when I came there. Bridges have been built since then. The bridge that was there when

I came did not have any provision for opening so that

1389 boats could pass through. I do not think any of the other bridges that have been built there since have any such provision in them. I think the bridges that are there now are high enough for an ordinary boat with an ordinary mast to it, to pass along. I do not think that any boats, except skiffs pass under it. There is only one bridge now in Lockport crossing the river.

Cross-Examination.

I have seen skiffs on the river there occasionally. My youngest son has a boat as big as I ever saw on the Desplaines

at Lockport. It is just an ordinary skiff. It was given to him by some parties that were working on the big drainage ditch, and it is in my barn now. I mean to say that I never saw any boats on the river. I do not think there ever
1390 was any. I cannot say that there never were any but I say I never heard of any or saw any. I never knew of a boat on the river propelled by sails or drawn along by ropes along the side of the river.

1391 GEORGE F. GURNEY, a witness for defendant, testified as follows:

Direct Examination.

I live in Joliet. Have lived there since '94; before that I lived in the town of Jackson, in Will County. That is eleven and a half miles southeast of Joliet. It is seven or eight miles from the Desplaines river. I lived there over thirty years, came there in '64 or 5. I lived in Wilton, a town southeast of that, before I went there; first came to Will County in
1392 1845. I am 75 years old. I lived in Florence a couple of years; it is a town southeast of Jackson; there isn't much difference in its distance from the Desplaines river. I have lived continuously in Will County since 1845, excepting a short time, six months or less, when I lived in Grundy County, on the Mazon. My business has been farming. I have a farm in Jackson and Wilton in Will County. I was thirteen years old when I came to Will County. The farmers in
1393 Will County, in 1845, used to haul their products to market by wagon, to Chicago; they got supplies in Chicago at that time. Some were brought here to Joliet. I came to Will County in a boat from Buffalo to Chicago; from Chicago to Will County by team. I think I have been more or less familiar with the Desplaines river running through Will County since I came. I never knew of boats coming down from Chicago with merchandise and produce and carrying passengers, along the Desplaines river. Never heard of such a
1394 thing; never heard of any commerce of any kind being conducted on the Desplaines river by boats, either in high or low water. I came from Chicago to Will County in March. I think I know whether it was possible at that time to come down the Desplaines river by boat. The fact is, you

couldn't; no way of getting over the dam. There was a dam here in Joliet, and the riffles up from Romeo would break any boat. I know of other riffles in the river right below Joliet closer than Treat's Island. There were riffles below
1395 that clear down to Channahon; what you call Channahon bridge. They might call it Smith's bridge now; that is the only bridge south of there; below that there were not any riffles or shoals in the river; there was considerable rather dead water there. When I first came here to Will County, there was a little dam here in Joliet north of the Jackson street bridge. Below Joliet there was a dam at Malcolm's mills and at Treat's; there was a little dam there; they had a kind of saw mill. I do not know whether there was another dam in the river below that; there was a kind of a dam near the mouth of the river there, but I do not know whether it was recognized as a dam or not. In those dams that I know of, there was not any provision made for locks so that boats could go through them back and forth; not in any of them.
1396 I think there was a dam at Lockport when I came to Will County; I do not know to what extent; I saw but of course had no particular object to remember it. The bridge at Lockport was the only bridge, when I first came to Will County. There was some timbers laid across there at Jefferson street in Joliet. There was no provision in the Lockport bridge for turning the bridge so that boats could go through. I had occasion to cross the river hundreds of times during my early life. I forded it at Treat's Island and below Joliet, and at Smith's bridge as you call it. Those fords were at riffles in the river; very little water there in the sum-
1397 mer time. You could not walk across it without getting your boots wet. I could go across without getting my feet wet, but I would get my shoes wet; go from one stone to another.

I have hauled produce to the Chicago market from Will County, two or three times; three times at the outside; that was before the Illinois and Michigan canal began operations; between 1845 and 1848. The roads were not good. When a man with a load got in a rut he stayed there; it was difficult transportation. I hauled produce back from Chicago every way.

1398 I recollect Haven's mill in Joliet. McKay built the mill on the side of the dam near Jefferson street. The Malcolm mill is where the Haven is. I worked for Haven's at this mill on the logs. The logs were hauled to the mill from

anywhere. Never heard of floating logs down the Desplaines river to that mill. They would run the water off in the spring; in the fall they had plenty of water to run. In the summer they had to run the water off, and then start up again. There was enough water to run the mill only at periods in summer; they would shut down probably over night for lack of water.

1399 I ought to be familiar with the old aqueduct that was built across the river down near its mouth, because I hauled their lumber there. I do not know that I could place the year; I think about '46 or '47; I hauled lumber there at the time it was being constructed. My recollection is that the stone to build the abutments for that aqueduct was hauled there from Alexander's quarry. I never hauled any for that aqueduct, but they had pretty fine stone, and that is my impression. When I speak of Alexander's quarry, I mean the quarry on the land that is now owned by Mr. George Alexander; his father owned it; it was probably 50 or 60 rods from the Smith's bridge. That bridge was at a point prob-

1400 ably about a mile and a half below Treat's Island.

I helped haul stone from Alexander's quarry to the aqueduct at Aux Sable. I think some of the stone was used on the aqueduct where the Kankakee feeder is; probably not all of it. They had a quarry there below, but I was never down there to examine it, because I had no occasion to. Some said it was good stone; some said it was not. There was a quarry below on the Illinois river, just above the mouth of the Desplaines. I never heard of any stone coming down the river by boats for the aqueduct on the Desplaines or Aux Sable. From my knowledge of the river it might have been possible to have brought stone from Joliet down to those aqueducts. Sometimes they could have floated a little stone now and then. I do not know where they could, from any place in Joliet, get them to the river; they could not get them through Haven's dam, or the other dam in Treat's Island. With high water they might have floated over,

1401 but they could not get it in. I do not recall ever seeing any fence across the river below Joliet; there were fences along the river; there were fenced pastures the Smiths made. Folks made fences down into the river where the stock could not go around in deep water. They built the fences into the water a little distance, so the stock could not get around. Sometimes, but not very often, it was pretty safe to put them in there and keep them in there. The distance the fence would

be built into the water depends upon the condition of the ground, and the depth of the water.

1402 *Cross-Examination.*

In building these fences into the river they would go as far as where they would have to hold up their heads, 2 or 3 and sometimes 3 and 4 feet of water. Sometimes they would be right close to the edge of the water, 6 or 10 or 15 feet out, sometimes 20, sometimes more. The quarry I was speaking of above the conjunction of the Desplaines and Du Page rivers was above where the aqueduct is built. It is right
1403 near the conjunction of the Kankakee and Desplaines rivers. Sometimes one could cross the Desplaines river at the riffles with shoes without getting their feet wet by stepping from stone to stone, I could not tell you what portions of the seasons. Sometimes we would have a long dry spell and then it would be a good long spell you could do it. That place I am speaking about now, the station of the Santa Fe road is right opposite. It is above Treat's Island. Occasionally could do it here in Joliet. In high water there might be
7 or 8 feet, sometimes 5 to 10 feet. It would not be much
1404 wider than the river is now, but it was on the flat lands. It is a quarter of a mile wide, probably, sometimes; on the lowlands the river would flow out at times; there would be a depth maybe of a foot or 6 inches, maybe 2 or 3 feet. The channel where the depth was 5 to 10 feet during certain seaons of the year I think would be 200 feet probably,
1405 maybe not; I cannot fix it well. I would not think the bridge at Channahon's is 300 feet wide, barely possible it is 200. Could not tell you how deep water would be required to float a boat say 30 feet long by 10 feet wide, 3 to 5 feet probably, I don't know. Take it on these riffles where it is rock, there would not be anything to cover those rocks
1406 and if a boat struck the rocks she would be there sure. Aside from the rocks, if there were no rocks to interfere I think from 3 to 5 feet of water would carry a boat such as I have described. I do not know anything about there having carried freight from Chicago or from the portage near Chicago on the Desplaines river down the Desplaines river and around to Kankakee on the Kankakee river. I have lived on the Kankakee river and the Desplaines from '52 or '53; I lived right close to the Kankakee at Wilmington; that is below Kan-

kakee City; they call it something like 25 miles. I lived
1407 there two different times, the first time from fall to spring, the second time probably a year. During the first time I lived there sometimes it was frozen and sometimes it was not. They used to ford the Kankakee with teams at Wilmington. I think I forded there and it was four feet deep. I could not tell you the depth. Sometimes it would be bare rock and then you would go into a hole, maybe a foot or two of water, while other places would be dry. I think it was '46 that I hauled stone to the aqueduct across Aux Sable creek. There might have been a saloon a
1408 quarter of mile or less from the river on Aux Sable creek; I don't know whether there was. There was two gangs of men working on the canal, one they called "fardowns" and the other "Tipperary's." When they got together I saw them get to fighting. That happened frequently when they got whiskey. They would come to Joliet and get it. Aux Sable creek may be 20 miles or more from Joliet. I am sure that there were not some stone taken down from somewhere there in a boat; I am sure there was not because they could not get them. There was no place to load it on. There was a stone quarry below the dam in Joliet. There was no way of getting them across from the quarry, is the reason I think there was none taken. I know where the first riffle in the Desplaines river was about the mouth; I can't place
1410 the distance. It would not be 2 miles there; it might be half a mile, more or less. I could not tell you how deep the water was on that riffle in low water season. The second riffle above the mouth is at Alexander's; my impression is it would be about 3 miles from the mouth. You could cross it stepping from one cobblestone to another. In deep water probably there was 10 feet there. I remember one place the depth of the river above the mouth of the Du Page and Kankakee, I would say it would be 15 feet,
1411 once in 1848. The depth of the water on those two riffles I speak of was after the dam was put in here at Joliet. There is a third riffle above the mouth of the river before you get to Joliet, at Treat's. I have seen the water run up the river there from the Kankakee. I am speaking of one crossing place they call the cut-off. The water went through the Kankakee river through the cut-off, then ran up the Desplaines, or backed up, whatever way you want to say it. It ran up the current pretty nearly as fast as I can run.

That was quite a big body of water. I could not tell
1412 you how deep. a big volume; I should say it would be as much as 10 feet, a big wave going right up, 2 or 3 feet of a wave. I say it run up 10 or 12 feet deep. All this was after the dam at Joliet was built. There would be another riffle down there at Brandon's bridge. It is about 2 miles down from the heart of Joliet, from Jefferson street.
1413 I have crossed that riffle hundreds of times; sometimes it struck my knees, sometimes it was a foot and a half deep. I did not stop to measure it. I got across; never swam a foot in my life; I have sat on my horse and let him go when he had to swim. I should think the riffle at Treat's was a couple of miles up and down the river. The others
1414 were not so long. This one at Joliet was all the way from there down to Brandon's bridge from the Jefferson street bridge down. I estimated that a couple of miles, more or less. I have crossed the place a number of times; sometimes I might have taken off my shoes and waded across. One place I speak of having crossed it right here below Haven's mill. I could not tell how much water was there at that time; it was quite wide. Some places there would be considerable and some you could jump across, sometimes 2
1415 feet probably, when I jumped from stone to stone. I never thought anything particularly about distances. I should think there is more water there since the water from the Sanitary channel has been put in. In my judgment, it has raised the water above what it was before about 3 feet.

Re-direct Examination.

I said that I helped haul stone from Alexander's quarry to
1416 the Aux Sable aqueduct it is on the south side of the Desplaines. The quarry was on a different side of the river from the aqueduct. We just dumped the stone at the aqueduct. We loaded our wagons at the quarry, hauled the stone over to the aqueduct, had to cross the Desplaines, crossed it at Channahon's there was no bridge in those days. We did not take it over in boats, drove our teams and wagon right through the river. While we were hauling that stone across, the water would be up to the front wheel of the
1417 wagon that would be something over three feet, three and a half may be. During the summer months over these stretches I have mentioned there was barely no water. Sometimes we would have very severe storms in August and

have very high water; that would last a week and then go down. In the spring under normal conditions anybody could go anywheres along these places, across in buggies or
1418 wagons.

Q. Had there always been fences running into the water there within your recollection?

Objected to as leading.

A. There have always been pastures and fences there within my recollection.

There was enough of a dam at Beard's near the mouth of the river, to prevent boats coming up the river.

Q. A boat couldn't get over it or couldn't go around
1419 it?

Obpected to as leading.

A. Yes, that is a fact.

Q. These occasions when there was deep water in the Desplaines river, was on one occasion in '48 when there was a flood, that was all?

Objected to as leading.

A. We had a flood there in '60, but in '48 was the time when there was a flood on account of the ice. This time in '60 something, was in August. Sometimes those floods take a couple of days to run down. There was never a time along the river when the water was 4 or 5 feet deep continuously for two or three months except since the Drainage Channel has been built.

Re-cross Examination.

This dam that I speak of at Treat's was only on one branch of the river, the lower branch where the water ran, about in the middle of the stream; the water was swift on the other side of the channel; I don't know how rapid, I never tried to run as fast or walk as fast; I never had any particular
1420 object to know how fast it would run. It was in the summer season in '46 or '47 I hauled stone down for the aqueduct at Aux Sable, I could not remember what month; it was in low season of water when we could ford it.

Re-re-direct Examination.

I do not know as I could state the year the state built the dam in Joliet at Jefferson street; that was not built be-
1421 fore I came to Will County. There was a dam there when I first came to Joliet. I could not remember when

the state built the dam at what is known as Jefferson street. It must have been '48 or '50, through there, before '50.

1422 XAVIER MUNCH, a witness for defendant, testified as follows:

Direct Examination.

My name is Xavier Munch. I live at North Hickory in Will County, near Joliet; came here in 1839; have lived here pretty much ever since, not all the time. I was out west about a year and a half, but other times I lived around here. My business is farming. I had a farm in Will County. I bought one in 1848 or something like that, and another in '59. It will be two years in February that I sold the last one. Dur-
1423 ing the time that I had them I cultivated the farms. I was born the last day of July, 1823. I came here first with my father on the canal. That was in 1859. We landed first at Lemont, then in the fall made up our minds it was a kind of a lonesome place, so we came to Joliet. We came to Lemont from Chicago, walked out afoot; came from Lemont to Joliet, drove down in a wagon. We used to have to go to Chicago; we could not sell produce here; go with oxen or
1424 horses; came back the same way; never came back empty, always had a load, lumber, coal, hardware, salt and such. I have been considerably familiar with the Desplaines since I came to Joliet in 1839; we used to go fishing in the river. I have crossed the river a good many times since 1839; had occasion to go across frequently with teams. I was down in Peru twice after sugar and molasses in
1425 1839 and '40. At that you could not get any flour by the sack; maybe go to the mill and buy a sack; otherwise folks would have to clean their wheat and take it up to the mill and get it ground. Merchandise dealers in Joliet got their supplies mostly from Chicago; all came by wagon; none came by boat that I know of; never heard of supplies being brought down from portage near Chicago by boat or Desplaines river. I have seen some small boats, 4 or 5 men, and they would have supplies, guns and tents, to go hunting.

Q. Those were row boats, were they?

Objected to as leading.

A. Yes, boats with paddles. I never saw boat plying up

and down the Desplaines river carrying passengers or
1426 freight never heard it that I know of. I never knew of any boat that went up the river, but have seen some common row boats come down. They would get to a dam, pull the boat out on land and bring it around and drag it along and put it in the water again—row boats with paddles. I did not follow them to the riffles. When I came down here there was a dam on Jefferson avenue, a temporary dam of wood.
1427 There was a grist mill; that was condemned by the state for making the canal. Down below about six miles there was a fellow had a saw-mill and a wooden dam, at Treat's Island that was clear across the north channel when they run the saw-mill. I do not remember any other dam below that. I do not remember a dam at the place we called Dresden, when I came here in 1839 I passed through at different times but I didn't see a dam there. I could not possibly say whether there was any other dam above Joliet in the Desplaines
1428 in 1839, but I believe there was one at Lockport, a temporary dam for a grist mill. There was another dam opposite the penitentiary just above Joliet that I know of. There was one at Jackson street after 1839 that was built, I guess, in 1840, built by the state for the canal; it was run clear across the river. There is a lock and dam above. The dam extends the full width of the river. On Jefferson street
1429 when they made the dam they built a lock in order for the boats to go through. The boats did not go up through the dam at Treat's Island before 1848. I never saw any going up never heard of any boats carrying freight and passengers going up and down the river. In 1839 there were dozens of places where you could get across the river, I mean in the spring of the year; you could ford it just below Jefferson street bridge; but the spring of the year if you had small boats you could get across. During the summer season, from the first of May until the first of October you could get across right above the Jackson street bridge, except during the high freshets; we used to drive through the river there; the water was possibly hardly knee deep, solid bottom, and through here on Jefferson street there is where the walking was most any time except in the spring when the water was very high. I crossed at Treat's Island; it was pretty shallow at the time I went, it was in the fall of the year, 1842; I went across
1430 with a threshing machine. Could cross there at almost any time except during the spring floods. I crossed at

Treat's Island different times with a team, dragged some logs down to the mill, the mill of a man named Treat who had a saw-mill. Took logs from Mount Flathead, that is, near Rock Run. There was some canal timber there and the man bought a lot of timber from Prescott; I don't know whether he got it for himself. He hired me and my father, and we sawed the logs and hauled them out on the river and rafted them down to Treat's mill; that must have been two and a half miles from the mill. I never saw any fences across
1431 the river; I saw some of them part of the way out, fences in there where the cattle run, but not across the river. That was, I guess, before '48. I had to do with the construction of the aqueduct at Aux Sable creek. I hauled timbers out there for Brandon for the aqueduct, 40-foot sticks. I do not remember seeing stone being hauled for that aqueduct it was in the winter time when I hauled the logs, hauled them from the Aux Sable grove, along the Aux Sable, mostly burr oak. I do not remember the construction of the aqueduct at the Kankakee feeder, but I know where John Treat had a little place right across the Kankakee, because I hauled a great deal of timber out of the Dresden timber for the canal and locks. I did not see any dam John Treat had there at that time. Part of the time between Lemont and Joliet, when
1432 I moved to Joliet there was a good road. There was a time you could hardly get along, whether you went on horseback or not. After I came here I went to Chicago by road. When we had any grain to sell we couldn't sell it here and had to go to Chicago. I took oats to Chicago and sold them for 11 cents a bushel. There were no boats running. I don't know that I would know if there were any boats running up the river to the portage near Chicago if there had been boats. I never examined it all together clear up to Chicago, but many times I drove up there. One time I went up to Chicago, from Joliet with a load of wheat and had to follow a trail the same as a railroad you could not get out. The other road was cut up so that you would break your wagon down if you would get out, and you would just have to follow one after another to Chicago, and you would see now and then a loaded wagon laid aside of the road and a dead ox or horse. I never saw any farmer taking grain up to Chicago by boat before 1848; these hunting boats are all I ever saw.

Q. Those were merely skiffs or row boats?

Objected to as leading.

A. They were hunters, had guns and tents. People came from Chicago to Joliet either with ox teams or horse and team. There was a stage; that was here when I came. I could not tell you the name of the line. The stage master was a big, heavy man, I can't think of his name now I guess he is not living. I could not tell you exactly how often that stage ran.

1434 I went up and drove four yoke of oxen to Ottawa with store goods from Chicago, and coming back I thought I would get in the stage and ride. I went to the stage hall, and he says, "About 7 o'clock this evening they have one going out." I says, "How much will you charge me to take me to Joliet?" He said, "$2.50." Well, I had hired out to take these yoke of oxen down and I was only getting 50 cents a day I only got $2.25, you see, and he wanted $2.50 to ride on the stage, and I went back to the shop and bought me a pound of crackers and paddled for home again on foot. This stage line ran on down to Ottawa and Peru, through all those places. There was no other convenience for people wanting to go to Chicago from Ottawa. That was in about '44 when I went down with my ox team.

Cross-Examination.

1435 It must have been about 1844 that that man down the river who had the sawmill hired me and my father to tie up a lot of logs. We hauled them out on the river, on the ice, in order to fasten them together on the ice; then when the ice went away we ran the raft down to Treat's mill. That was on the south corner of Mount Flathead. Rock Run runs right into the river on the north side; I should judge it was about two miles or two and a half above Treat's mill. We hauled the logs together and laid them side by side and

1436 fastened them together and made a raft. There must have been about 30 logs, I guess. Some were 3 feet and some 3-1/2 feet thick. When we took the logs down, the water in the river might have been 7 or 8 feet deep. That was mostly in the fall and through the winter. When we had done with the farm we would go to the woods and haul wood and logs. We crossed the river at Brandon's Bridge. Some-

1437 times the water was about knee deep, and others I crossed it when I was pretty near drowned. By knee deep I mean a foot and a half or 15 inches. It must have been 40 or 45 feet across. At the time I crossed with the rails, I

guess it must have been 100 feet wide. In high water
1438 it might have been 60 rods wide; in low water I don't think it was over 40 or 45. I think the bridge there, Brandon's Bridge, is 120 feet long; where I crossed the river it was not as wide as that bridge is long. I said the stage line went on down to Ottawa and Peru, I don't know how far through. I went down to Peru, that is as far as I ever
1440 went with a wagon; I could not tell you if it went to Peru. There was not any dam down there at Dresden Heights in the early days that I recollect. I hauled teams there in the early days; was in Channahon over a week; that must have been '45. I boarded at Dresden and Morris. There might have been a dam there at that time, but I paid no attention to it, unless I was wondering whether the three rivers ran so closely together. I saw Beardstown and three large buildings, and so I was surprised that that fellow was across the river all alone by himself. I say I saw boats in Joliet going down the river at the old mill where they changed routes; four or
1441 five young men in the boat. I saw some tents, trunks and boxes where they had provisions, and guns. The boat must have been about 20 feet, maybe 22, from one end to the other, on top I guess in the middle about 4 feet wide. I don't know how much water it would take to carry a boat 30 feet long and 10 feet wide, with five tons on it. I was fishing on the river down at Brandon's Bridge, and when I got on the riffles I could hardly go with two in the boat. That
1442 was in the spring of the year, about April, ploughing time. The boats I said I saw came from Chicago they said; they went down the river; I couldn't tell you how far they went. I could tell you pretty near what year that was; that was in 1840. I saw where folks had made a fence on pastures; I never saw any fence across the river; saw
1443 the fences built down to the river, about 10 or 12 feet into the river. They built out far enough so the water would not give away, so that they would not have any water at all. Those were little pens out into the river for cattle to get water in the river in summer time. The place where I crossed
1444 the river near Brandon's Bridge was about 40 rods down; I crossed about 100 feet above the bridge near Christmas time, crossed through the water. At that time the water was two feet and a half deep. I crossed at Treat's Island in threshing time, in September; took a threshing machine across. That was in 1842. They had threshing machines here in

1842; just a thresher and three men with a rake and fork to get the straw. It was on a wagon. We had a common
1445 wagon they were laid on and hauled it across that way. The water might have been 15 inches. That was about in September; August is most too early to thresh; I think it was in September.

Re-direct Examination.

Farmers crossed when they had occasion there at Treat's Island; there was no bridge there. Down at Smith's Bridge they hauled many a cord of wood off the timber, crossing the river there. That was used all summer for that purpose, any time you wanted to, at Treat's Island and Brandon's Bridge. Transportation less than twenty-five or thirty hundred I hauled across there. That point we put the logs in for the Treat's mill, from that down to the middle is what is
1447 known as Lake Joliet; that is on the end of the lake. These people that had the boat pulled it out on the land to get it around the dam and put it back into the river; they could not get over the dam. They didn't take the contents and packages out. There were three or four men, all had a hand in it; had to drag it only a few feet. That was the dam at Jefferson street. There was no dam down where the Haven dam is at that time. Philly Haven started the sawmill and he used stone out of the canal to make a dam. If you should show me that that dam was built in 1839 I would not believe it. I think Haven built his dam in 1840 and used stone that Mr. Beemer had taken out of the canal to make that dam; it was later than 1840. I worked in 1840 for Beemer on the canal and this must have been in 1841. I think I saw this boat in 1840. I was not in Joliet sooner than 1840. I never saw
1449 a dam above Joliet opposite the penitentiary. I said that at the crossing at the point now known as Brandon's Bridge the river was about 45 feet wide in the summer time. I meant feet, not rods.

Re-cross Examination.

I hauled this threshing machine across below Treat's mill. The water was shallow. Go anywhere over there, there was no bridge, only to be looking for the nigger-heads, not to run against them.

JAMES BOYNE, a witness for defendant, testified as follows:

Direct Examination.

My name is James Boyne; live in Joliet; have lived there about 60 years. Was born the 2nd of August, 1835. I think I was 10 or 13 years old when I came here. I came from Cornwall, Upper Canada, by boat across Lake Michigan to Chicago and from Chicago down to Joliet. To Joliet we
1451 came by wagon or boat, I forget which. I came from Canada in 1834. I came to Joliet I think about '34 or '35, I can't remember; my memory is bad.

1452 Q. 1844 or '5?

A. 1844 or '5. I am 73 or 74 years old. I have lived here in Joliet about 60 years. My business since I lived here has been wood turning. I am familiar with the Desplaines river. I have been up as far as Chicago and down. I have been as far down as Treat's Island. I came from Chicago to Joliet by wagon. There were not any boats plying the Desplaines river at that time I know of. I did not hear of any boats carrying passengers or freight. The first two boats that came on the canal were the General Ply
1453 and the General Trenton. I never knew of a boat on the river except skiffs. The dams in the river when I came were Treat's and Haven and the upper bridge here, Jackson street, and there was one at Lockport. I do not remember one being opposite the penitentiary. In the early days the dealers got their produce by wagons from Chi-
1454 cago. I do not remember any coming from St. Louis. It could not come down the river, because the river will not carry a boat. I have been over the river thoroughly. I have waded across it for miles up and miles down. I have been up and down from Lockport, but the depth of river there I don't know anything about. I am familiar with it as far as Haven's dam thoroughly, but I would not say I was familiar with it from there down to Treat's. In the summer months it was very dry; at other times there was plenty of water; in the early part of the year there was plenty of water, but there was a great deal of dry time. When I worked down at Haven's dam, I worked there I think about eight
1455 years, the water used to be so low that I could not run, and then it would be so that it bothered us. There would be freshets during the summer months, when the water would

be high; that would last along perhaps a weeks, a couple of weeks at a time. I considered the general condition of the river during the summer months from May 1st to October, with the exception of freshets, was low. I could wade across it below Jefferson street bridge. There was not a number of fords; I do not remember the ford at Haven's dam. I could cross there at Bush's where the bridge is now. There was an island there. I could wade across there and below quite a distance; that is, just below where the Jefferson bridge now is. I do not think there was a regular ford there
1456 where teams crossed. I think there was a bridge. I never saw any boats used for commercial purposes come up and down the river; I never heard of any for that purpose.

Q. Skiffs could not be taken clear up and down the river without portaging them?

Objection by counsel for complainant to the question as leading.

A. No, sir.

The WITNESS. From my familiarity with the river a man could not always take a skiff all the way up the river. When I could wade it, it would be about 16 or 18 inches, and you could not run a very heavy boat over that, and you would be off and on the rocks; you would have to stop and carry
1457 the boat. A small skiff might run. I waded the river time and again from one bank to the other. The canal commenced long before we came here. It had stopped then. When it commenced the second time we were in Lockport.

I would be 72 years old—I could not be positive what my age is; my memory is very bad. Going back to the early
1458 days, some things I remember and some things I do not. I remember the Irish riot with the Orangemen, such things as that. I was able to wade this river different times; as a general thing the water was about 18 inches then, and you would run across a hole about 15 feet deep; there I would not try to wade it. When I said that this river was
1458 not navigable and is not to-day I meant that there is not five six feet of water in it. There is at places. I would not like to consider a river navigable unless it had four or five feet of water; that is what I mean when I say this river is not navigable. When the water was very low in the river it would run from a foot and a half to two feet. I am accurate about a great deal of this, but there may be some things that I may not.

Re-direct Examination.

Q. When you say that the river was not navigable, you meant, didn't you, that it never was navigated for commercial purpose in your recollection, is that right?

Objected to as leading.

A. That is right I never knew of it being navigable.

1460 *Re-cross Examination.*

There may have been boats coming down from Chicago toward Lockport. If a boat could get along on 2-1/2 or 3 feet of water it could have come down this way, but a loaded boat would not be apt to do that.

1461 LEWIS K. STEVENS, a witness for defendant, testified as follows:

Direct Examination.

My name is Lewis K. Stevens.

I live at 203 Oneida street, with Charles L. Stevens, my son, in Joliet. I was born here, right over east; have lived here since 1836. At present I have been in mining in the west.

For the last eight or ten years I was farming and work-
1462 ing in the stone quarries, and all that kind of work; contracting a good deal through Joliet. I have been living here you might say continuously all my life. I would be away off and on business and back again, but it has been my home. I don't live now in the same place where I was born. I am living on the west side. The E. J. and E. yards are our farm where I was born.

I remember merchandise and produce was brought to Joliet prior to 1848 with teams, as a general thing. I don't know of any other way to get it here. I know of produce being hauled between Joliet and Chicago at that time.

I was 12 years old in 1848. You understand that I am speaking now of the time of the commencement of the
1463 operation of the Illinois and Michigan Canal. People would travel in wagons in those days between Joliet and Chicago. There was not any other usual or customary method of travel between Chicago and Joliet in those early days.

There was wagon, and stage and horseback. There was a stage line running through on the west side of the river down from Chicago. It came down and went through to Ottawa. I don't know whether it went further south than Ottawa. I didn't travel on that line, or the stage; had our own teams.

First time I ever went to Chicago was in 1843. Went with a wagon load of wheat, and brought back some salt and a little lumber and other things that father wanted at that time.

1464 I went with my father. I went there a number of times, every once in a while, with our team. After they commenced to operate the canal there was not a great deal of teaming. There was some even then, but the canal would do most of the freighting. Before the commencement of the operation of the canal there was some teaming to points on the Illinois river,—not a great deal. They brought goods from the other way.

Q. Wasn't there a good deal of merchandise brought from St. Louis?

Objected to as leading.

A. Yes, sir.

There was stuff brought from St. Louis clear to Joliet. Before the canal it was brought with teams exclusively, as far as I recollect.

I didn't personally know of any merchandise or commercial articles having been brought up from the Illinois river to Joliet along the Desplaines river. I never heard of any boats plying along the river south of Joliet and used for commercial purposes, either in the transportation of freight or passengers, along the Desplaines river; nor of any plying between Joliet and Chicago. It would be an impossibility. I never personally knew of any such boats being operated on the river. Never heard from anybody in whom I had confidence, or from old settlers who lived there that there was any boats used up and down the river for commercial purposes. I am personally familiar with the river through Joliet and a little below Joliet and up to Lockport and Chicago. I have crossed the river a number of times and been up and down it on the banks.

1466 I know the general condition of the river in different seasons and the current; knew the condition before 1848. The condition generally of the water of the river during the summer months between May 1st and October 1st, as to the amount of water, would vary a great deal. Some seasons that

I have known the river you would not know that the water run. You could walk over the rocks; it would seep through; almost dry in places. There would be very little water in the river at times, and then wet seasons there would be water and floods, and there would be a great deal of it coming down from the side-hills all along up and down the river. I don't remember any season when the water of the river was high all during the season.

1467 There were several places we forded the river; when we went in about Washington street, here, and crossed the river on the island and went through there,—that is here in Joliet. Up a little this side of Lockport, there was one. We owned that; owned the old Norman property there. I have forded the river there a good many times. We had 250 acres of land in the town of Lockport. I forded it a number of times right west of Lockport. There it was very shallow. At Lockport they drove right through. The one up there at Norman's was only teams going in for wood. The one here at Joliet was a regular ford for teams,—a regular wagon

1468 road across the river. There was not very heavy loads drawn in those days. That was the only means of crossing the river prior to 1848, until they built an old bridge at the island. They had a bridge there before that time,—kind of an old wooden bridge. This ford was commonly used during the entire summer season,—quite a little traffic over it. There was not much current. There would be places there where there would be riffles, but there was not fall enough to make any great current. There was not fall enough from the Chicago down here to make any current,—never was.

1469 The water will stand along in pools and run slow. There would be a little current where the riffles were, but nothing very swift,—only in high water,—then it will rush down. From here up, there was but very little current. There was a little from Lockport down, but take above there, there was hardly any current; in fact the water would run back the other way sometimes,—when the water got high in the flats and the heavy water would flow into the lake.

Where those riffles were, the normal depth of the water during the entire summer season would be from 4 inches to 2 feet. I have driven right through where the riffles were and ridden through on horseback; never walked across. I could have gone through because at some places it would not be

over three or four inches deep. These places were at
1470 the riffles. The one at Lockport there might have been four or five rods wide,—about four or five rods up and down. That one at Joliet near where Washington street is was shorter. It dropped down a little ways and then there would be holes there,—that is, where the island stood. There were some riffles below, but I was never familiar with them.

I know of riffles down near where Brandon's Bridge is. It was not very extensive in length,—10 or 15 feet long, I guess. That was a place where they crossed there. At that time it was called a regular road. Of course, there was not so much travel there. They did not use it much.

1471 I never traveled much through there where Treat's Island is. I never paid much attention to that. It was out of my range. I never saw any boats going up and down the river over these riffles. It was not possible for boats to go up and down over those riffles and float all the time. You would have to drag them in places. I never saw any boats of any kind in the river, except little row boats, that they dragged down and went fishing in. We had to drag it out around the dams and places of that kind.

Prior to 1848 there was a dam in the river here at Jefferson street in Joliet. The old Malcolm dam down below here remained there until the Drainage Canal took it out,
1472 bought it of Adam, and took it away. That is the dam that is spoken of as the Haven Dam. I guess it is just south of the city limits of Joliet.

There was a mill at that dam. There was another dam at Lockport just west of there. The Norman Dam was this side of there. That was the old Daggett Dam. Daggett got it afterwards. It was Norton's mills. The Norman Dam was situated on the property father and Goodspeed got of Norman afterwards.

The Norman Dam was in the Township of Lockport, about a mile above the prison, on what was the old Sanger farm. They were all in the river before 1848.

1473 I don't know there was a dam at Treat's Island, only from hearsay. I never saw a dam there. I never was down the river near the mouth, at the place called Dresden Heights in the early times. I was there somewhere along in '62 or '3. I don't know of my own knowledge that there was ever a dam down there. I have heard that there was; that is only from hearsay.

1474 All these dams that I speak of being in the river before 1848 were clear across the river. There was not any way whatever in which boats could go up through those dams. There were very few skiffs used in the river before 1848 that I know of. Some young people would go fishing or hunting, or something of that kind. That is the only purpose I ever knew it to be used for.

I was up at this island between Joliet and Lockport, a-fishing and hunting there. We had a boat. We were up the river at what they call Lillicache above Lockport, and part of the time at this island above the old Norman property. I paddled around a little there, fished some and killed ducks in the early days. I never did much of that. I was generally busy on the farm. I was not much of a hunter or fisher.

I have never known of the river being navigated by boats for commercial purposes since 1848. It could not be, on
1475 account of the dams. It would not be possible for any boats used for commercial purposes to have gone over these riffles during the summer season, at the normal stage of water. If there had been no dams there, it would have been impossible in my judgment to have navigated the streams.

We had a fence across the river at the old Norman place. We had wire stretched across and boards hung down in. My father and Judge Goodspeed owned the land on both sides of the river. I don't remember the section but it was in the Township of Lockport right above the town line, and took in the island. There was 250 acres. It was this side of the
1476 Lockport Dam; must have been a couple of miles. It was the Norman property. There was part of the dam left there, but not very much. It was only across one branch at the head of the island.

The fence crossing the river was below the dam and then it ran around up to the dam. The fence was put there just to keep a little stock in there. I cannot say exactly when it was constructed. I remember father sent me up there one time to look after people that were stealing timber off of it. That must have been between 1845 and 1846. I was quite a boy. There was a kind of a fence there then, mostly brush fence,—except across the river,—just enough to keep stock in
1477 there. There was some of the old remnants of the fence there then. I think it remained there some fifteen years afterwards. It was fenced in around there on that flat,—in

fact has been fenced more or less from that day to this. There would be times that they had wires across the river. I don't know but there may be wires there yet. I don't know of over one or two other fences there. Of late years there has been more at the pastures up through there by Allen's property and Fitzpatrick's, that was this side and the other side of Lockport Road, which runs right west of Lockport.

1478 These other fences that I spoke of were between Joliet and Lockport, and I think there is a fence or two above the road on the other side of Lockport.

I cannot remember any special fence,—only the one on

1479 our own land there. The fences were put in there after the canal was built. It must have been in 1848 or 1849. I was up there last year, and there were some fences, scattered through there then across the river. This is where the old river used to be there then. Since they have opened the Drainage Canal,—the river-bed was on the west side of the canal;—that is where the fences are across the bed of the river. You see it is not the present bed of the river. They are on the west side of the bed of the river now, but the old river-bed used to be west of that. They have changed that since they have cut the Drainage Canal through and left the old river-bed on the west. The fences established on my

1480 father's land was where the river ran in olden times, not where the river runs now. The fences other than the fences on my father's land were across an old abandoned bed of the river after they started this Drainage Channel through there.

Q. But when the fences were built it was the river?

A. It was the river.

Motion to strike out, question leading.

The fences were maintained up to the present time be-

1481 cause there is no channel there. The channel was not changed until they built the Drainage Canal; that was about 1899. These other fences were maintained across the stream where it was flowing prior to 1899, ever since I can remember.

Cross-Examination.

I have never seen any commercial navigation on any part of the Desplaines River. Have not seen anything hauled up or carried on boats on the river, or any stone taken down the Desplaines River on any boat, to be used for improvements.

I am not the gentleman who made a statement here a few days ago concerning what I have seen hauled on the
1482 river. I made a statement that I had seen a dock below here, but what it is for, I don't know; but not any boat or any stone on a boat. They asked me if I had seen a dock, and I was sworn to it in Mr. Chaney's office. I thought of it afterwards what that dock was built for. That dock was down at Brandon's bridge. It was some stuff thrown up there that looked like a dock, but in my inquiries since, they would cut wood and throw it on to that place and draw it away in the summer time. When the lake was frozen down there, they would run the wood across and pile it up. This was down near Brandon's bridge, a mile, or a little over, below Joliet.

I don't know anything else I said in that statement I
1483 swore to the other day; only I had seen a dock there. I told them I had never seen a boat or craft of that kind. I think I know what a dock is. That was not what you call a dock now. It was what you called a dock in those days. A dock in early days would be a log thrown down any place to tie a boat to. Its proportions were not such as to meet the ideas of a dock to-day. There was no snubbing post or anything of that kind where a boat could be tied. They could tie it to the logs that lay there. It could be used for a dock,
1484 but you would not call it a dock at the present day. I said it could be called a dock, but I did not say it was one. I do not think it was a dock. I did not testify the other day that it was a dock. I said it was some stuff piled up there that looked like a dock. I did not state in my affidavit that it was a dock. What they put there I don't know. I
1485 told them plainly that it looked like a dock. They read the affidavit over to me. I did not have my glasses. I cannot think of the man who prepared the affidavit. He was in Chaney's office. Claire took the affidavit. It was not Stevens. I think it was Purkheiser. I did not go there and tell him what the facts were. They asked me and quizzed me in every way, and I told them plainly that I knew noth-
1487 ing about anything of the kind. They asked me if I could make an affidavit that I had seen something like a dock there, and I told them that I could do that if there was something thrown in there. I talked very plainly to them,—just as I am talking to you; that I thought it was outrageous to think of a boat being there; that they had lived there just

like myself, and I had never seen a boat going up and down the river. I told those gentlemen all the things that I have just now been relating in regard to the boats, and things of that kind, and the dockage. I did not say in that affidavit that stone were taken down the river in a boat. I told them plainly I never had seen a boat on the river. I did not on the occasion,—when I talked to those gentlemen in Mr. Chaney's office and when the affidavit I have mentioned was prepared and signed—state to them that in 1835 rock was loaded on a boat and sent down the river. I did not state to those gentlemen on that occasion that stones were quarried near the river
1488 and loaded on a boat and sent down the river. The names of the gentlemen present in Mr. Cheney's office on the occasion I made the affidavit I referred to, were Mr.
1489 Chaney, Mr. Reiley and Mr. Purkheiser, I think. Those gentlemen were all present when I said on that occasion whatever I did say,—all except Chaney. He came in to take the affidavit. I might have said some things when he was out. The others were there when I went in and after I went away.
What I stated to those gentlemen was true as far as I
1490 am concerned. It was true the way I understood it. I have not taken any interest in this lawsuit. Yesterday
1491 was the first time I ever was introduced to Mr. Munroe. I had just a few words with Mr. Munroe yesterday; no talk at all; simply if I could testify in regard to the river being navigable. I told him I could testify to what I knew about it.

I had a little talk with Kercheval, my cousin, about what I was going to testify here; Charles Kercheval,—I talked with him the day before yesterday first. I don't know any-
1492 thing about his taking some interest in behalf of Mr. Munroe or the defendant in this case. Only he telephoned me and wanted to know if he could see me, and he asked me about it. We talked over about the river. He and I agreed. I did about as much talking as he did. He did most of the talking. He asked me what I knew about it, and I told him. He asked the questions and I answered him. I know he and I agreed because in talking it over we agreed on those points in regard to the river and the boats. I did not agree anything with him what my testimony should be to-day. He did not ask me if I would testify here to these matters.
1492A He telephoned me and asked me if I could be a witness in this case. He did not ask me if I would testify to any particular things.

In regard to the navigability of the rivers, he asked me if I could testify to them, and I told him I could most certainly, what I knew about it. There was not any suggestion made by either of us what the answers would be.

We talked about the riffles and dams, and things of that kind. He mentioned some of them first, and I mentioned some of them. We were comparing notes, how it was in past times. I remembered some and he remembered some, and I have testified to all that I remembered and all that he remembered.

I was born right here east of Joliet, about a mile and
1493 a half. I am in my 72nd year. I did not do much fishing and hunting in my time; was generally busy on the farm. Never even ran a row-boat myself. Did not do a great deal of business on the water.

The fences I spoke about that was across the river at my father's farm, was a wire stretched across and then some boards hanging down from the wire. That constituted the fences. The wire was perhaps two or three feet above the water. It would perhaps not be more than a foot above high water. The water has a wide scope in there. The river
1494 was not so wide, but the lowlands were a mile wide there. The river there was perhaps 6 or 8 rods wide. That would be from 100 to 130 feet. This wire was stretched across there. The boards suspended from the wire were little poles and hung down there. I could not say how long they were,—perhaps 6 or 8 feet, perhaps 10 feet.

This wire was stretched at high water perhaps a foot above the water; in very high water it might run over. They did not reach to the bottom of the river. They hung along
1494A lengthwise, and the water would swing them back. If those poles were from 6 to 8 or 10 feet long and from 1 to 2 feet above the water, the water must not necessarily have been from 4 to 6 or 7 or 8 feet deep. The water down below is not so very deep. It was perhaps a couple of feet deep. When it raised it would be deeper. In low water, the water was probably 2 feet deep; in high water it probably would have been over the top of the wire. In low water it was perhaps 4, perhaps 5 feet above the surface of the water.
1495 As near as I can remember, it is right that, in ordinary high water, it would be within a foot of this wire, and in low water when the water was only about 2 feet deep, the wire would probably be about 5 feet above the surface of the water.

I have answered that boats could not have gone up and down the river because of these dams. It was because of the water also. I don't think there would be water enough in places. At some times and in some places, I don't think there would be water enough,—I mean riffles. I have seen the time right here in Joliet that the water would stay back and would not run over for a week.

I think for commercial navigation that there should
1496 not be less than 4 feet of water. I think you could not navigate a river with less than 4 feet. I say in going on the river there would not be enough water there,—I say it on that account—not above 4 feet. But when we have 6 inches, I have seen the river when there was not more
1497 than 6 inches, and I know it could not be done in 6 inches. I mean on the riffles all along the river. I don't mean literally "all along the river,"—I mean where the boats would have to go through in the river.

It is true that in a good many places the water is 10 or 12 feet deep on this river. It is also true in certain seasons on the riffles it goes down to 6, or 8 or 10, or 12 inches, and where it don't run at all. It runs underground, seeps through.
1498 I literally mean that it don't run above the surface at all. I mean it runs between the rocks wherever there would be holes. I have seen that kind of a thing in places wehre the water was 2 feet deep. It would be where you had rocks and gravel. If there was rocks piled up and water two feet deep, it might be a lot of little rocks and gravel. I
1499 mean to say that in the Desplaines River gravel and rock were piled up by nature, washed there, so that they would constitute a riffle. The water runs through pretty deep sometimes. There would be gravel and stone,—no telling what kind of a riffle there would be.

I mentioned three fords in the river: one right west of Lockport, one near here on the Norman property, and
1500 also at Washington—Jefferson St. Take Brandon's bridge, I forded there some. In the summer time when I went through there I crossed when the water would be about 18 inches deep,—probably a foot to 18 inches. Lockport, I went there when it was not more than 6 inches deep over the ford; the two other places down there perhaps a little deeper. It might have been two feet deep in the deepest places at Washington street. At Norman's we went through there and there was no regular road across the river any place

there. It would be a foot to 18 inches in the summer time, at low water stage. There was no regular ford there,—that was our land. We would just go across ourselves.

1501 I said there were perhaps a dozen times I went fishing. There was a number of times, perhaps a dozen times in my life. I was with some parties at one time, and we had a skiff up there, a little row boat, a paddle boat,—pushed and paddled down and shoved it along. I said I did not remember how many times, several times,—perhaps a dozen times. I do not know what I said in my direct examination. I said there was not much current in the river.

1502 I am referring to the current above. I said there was more current below than there was above. It dropped sometimes,—say go for several rods and then it would drop 6 or 8 inches. It did not drop very much.

I mean by the current, where the water descends a little, where there is a descent in the river; that is what makes the current. It is the moving of the water,—the speed of the water in the river. The current was very low on the riffles because there was not flow enough to make it. It was not very swift,—pretty slow. I nevr figured on the mileage, or

1503 anything of that kind. I don't know if it was running 15 miles an hour,—perhaps about a mile an hour. There were places where it might have been a little faster than that,—I would say at the rate of two or three miles an hour, but not very swift.

The ford above Lockport is above the dam,—above the Lockport mill. It is perhaps one-half a mile. The dam is not more than four feet high,—four or five, I don't know what it is now. At that time it was about four or five feet. At the ford above the dam the water is clear down up there in the summer time. It would not be six inches. The water was not backed half way up to the road. It was backed up one-fourth of a mile, so the ford is clear above in back water from the dam.

1504 There is a dam at Jefferson St. just a little above the ford at Jefferson street in Joliet. I think it was perhaps three or four hundred feet. There was no regular ford there at Norman's,—just rode through the river at different places.

The fords I mentioned in direct examination were: one at Lockport and the other at Norman's this side of Lockport, a couple, or three miles below Lockport. This one was not a regular ford. Two of them were regular fords; and then the

one down at Brandon's bridge was a regular ford. A
1505 Lockport, I don't think I ever saw it at high water, over
five feet above the low water mark. Those other places
it would be a little more. I have seen it when it broke down
through here; it would raise 6 or 8 feet here in Joliet. I don't
know that I stated anything that one month at a time during
the summer time there was deep water. I have not any spe-
cific recollection of the year 1876. I was living in Chicago
went up and down here. I knew there was considerable floods
here. During the summer months,—May, June, July and
August of that year, I am of the opinion that the river could
not have been very high. There might have been plenty
1506 of water in it, but spread around a good deal. I knew
there were times that the river did flow out of its banks
run around through Spring Creek down over our farm. I
don't just have in mind what time it was. There was more
water in the river as a general thing during that whole sum-
mer season up to September. I cannot say in regard to
1507 whether there was four or five, or six or seven or eight
feet there in that year.

It was along in the spring, in June, I think, the times that
I was fishing in a boat up there. We went out into the ponds
into the river; the ponds through the river. We took the boat
in a wagon when we went up there,—just fished around there
where we thought there was fish. We hunted deep places in
the river to fish. The water was five or six feet deep where
we were. That was below the Lockport dam,—perhaps a
couple of miles, this side of it; and another time this side of
the dam up above Lillicache. It was this side of the Norton
dam below it. I was close to the old Norman Dam, was up a
ways.

Re-direct Examination.

1508 When we went fishing and took the boat in the wagon
we took it from Joliet. We could not take it up the river
very well. We could drive it down to where we wanted to fish
and get out on the pond. We took the boat back on the river
sometimes. That must have been after the canal was built.
That must have been in 1849 or 1850.

1509 My testimony that the current was not very swift over
the riffles applies to that part of the river above the dam
and below the dam; where the water was running that would
give it a momentum. The water coming right over the dam
might run at the rate of 40 miles an hour. It was swifter be

low Joliet than it was above. When I was down at Treat's Island it was swifter a little down there than it was this side. There was a place down near where Smith's bridge is now that was pretty swift. I never noticed the current much below there.

1510 I spoke of poles that were attached to the wire fence across the river at my father's farm. There would be a wire across and then they would hang some light poles on, and the poles would hang down below the bottom of the water. When the water would run it would swing them up. The poles were loose at the bottom to keep the cattle from going in.

I did not mean to say that I agreed to testify to what Kercheval remembered. What I have testified here is what I remembered myself. Kercheval asked me my remembrance on things that I would remember. He would talk just as any man would about the circumstances of the river at that time. Of course, it brings things to your remembrance that you would not remember if you had not talked about it.

Re-cross Examination.

1511 Where I said the poles went down below the bottom of the water, I did not mean that I meant down below the bottom of the wire. It went down below the top of the wire in high water and below the water always.

This skiff that we went fishing in was a little boat that we put on the wagon. It was 10 or 12 feet long. It would weigh about as much as a common wagon box. Two of us would be in at a time of a fishing expedition. Our taking it in a

1512 wagon was simply an expedient way of doing it. We put it in the wagon and drove it to the fishing grounds. That is what we did it for.

I think I said the river at the place where the wire stretched across it was from four to six rods wide.

Q. Did you not say six or eight rods, and I reduced it to feet, and you said 100 to 130 feet? What is the truth about it?

A. You said about 100 feet, if I remember right.

JACOB ADLER, a witness for defendant, testified as follows:-

Direct Examination.

1513 My name is Jacob Adler. I reside at Joliet. It will be 70 years next spring since I came here the 17th of March. I will be 72 next March. I came when I was two years old. I have not lived in Joliet continuously. I lived up at Hickory three years after we came here. That is what was New Lenox, in Will County, six miles from Joliet. Then we moved from there. I bought a place down next to what we call the edge of the lake,—Brandon's Road as you probably know it,—on top of the bluff, about two miles south of Joliet I guess. During this entire seventy years I have lived in Will County at these three places.

I was a farmer until I was 20 or 21. After that I went to Pike's Peak in 1859, then I came back and started a butcher business in Joliet, that was in 1860. I have been in business ever since. I have retired. I am with the boys, but I don't do anything much,—only go and see the pasture and cattle, and sometimes I go out and buy. That was my father's farm where I farmed up to the time I was 21. It was about two miles south of this; south of where we lived, down near by the river,—that is south of Brandon's Road.

1515 The first farm where we lived was along the river, part of it was to the river. In the early days we dassent go on the prairie because there were so many sloughs. We could not get to town, there was no bridges. At that time none of the farm lands laid on both sides of the river; since that time,—I think about 1860, I bought one and a half miles along the river on one side. I rented some on the other side,—about a mile I think it was, sometime in 1865 or 1866. I still own some of the land that I bought, but I sold some of it. I pastured some of that land after I went into the butcher business.

I have known the Desplaines ever since I was six years old, when we moved there, and I have known it ever since. I had pastures that I bought there somewhere along in the '60's. I was familiar with the river ever since and before that. I

1516 lived I guess within 80 or 100 rods from the river. I was familiar with the river before the canal commenced operations in 1848. In 1848, I don't know of any more dams than up town here. I was driving cattle up to Lockport, and I saw

the dam there, that they called the "Old Daggett Dam." The dams that were built in the City of Joliet were built before 1848.

I think there was what you call the Haven dam, and the dam at Jefferson street, and the upper dam. The upper dam is 80 rods above this dam here on Jefferson street. It extended clear across the river. There were no mills on those dams, but at that time there was a mill down here that we called the Havens mill. There was a dam there. I think that was first a sawmill and then after while they built a grist mill.

I saw a dam at the north end of Treat's Island; I could
1517 not say when I saw it first. I was a boy and we went down. Our cattle ran that way sometimes in the spring of the year, and we went down and I saw the dam there. I think that was before 1848. I don't know that there was any dam further down the river nearer its mouth in those days. At Washington street there was an island there, and there was a bridge from one island to the other, and then over to the other side. At that time it raised it over the canal. That was some time when I was 8 or 9 years old,—I guess that was before 1848.

There was a bridge down there at Brandon's, what they called the Brandon road; I forget when that was built. There were piers in the middle of the river, and then there were logs
on it and boards, and we went over it. I don't know
1518 when that was built. These dams that I have spoken of were not so constructed that it was possible for boats to go through them. I was not familiar with the river above Joliet in those days, more than sometimes I went up there to get cattle.

I think what you call the Daggett dam was there before 1848. It is southwest of Lockport. I don't remember a dam called the Norman dam near the penitentiary, where the penitentiary now is.

My parents came to Joliet or Will County driving with a team. We moved from Chicago in the spring to Indiana, and the same summer we moved with the team up here between Lockport and Joliet. During my youthful days I had occasion to go to Chicago from Joliet. Went by ox team. Went up
there to sell our wheat or corn and then we would bring
1519 provisions back. That was the customary method of the farmers at that time in taking product to Chicago. There was not any other method that I heard of or know of.

I never knew of any boats being navigated up the Desplaines River from Joliet to Chicago carrying produce, merchandise or freight. Never saw a boat on the Desplaines operate for the purposes of commerce. I never saw any boat on the Desplaines other than a skiff. Never heard of any. Never heard of any freight or merchandise or produce being brought from points on the Illinois River to Joliet by boat along the Desplaines River. Not more than what I heard said.

Q. What did you hear about that?

1520 Objection by counsel for complainant.

A. I have heard them say that they came up as far as La Salle, and the time they were building the canal that they brought stuff over that way along the canal with teams.

The WITNESS. I heard that at the time they were building the canal. I never heard of their coming over to Joliet that I know of. When I was a boy it was not possible to navigate boats up and down the Desplaines River between its mouth and Chicago.

In 1870, or something like that, they pumped in the water from Chicago. The water came down the river and made it bigger. Before that water came down, the main river was very little, when there were dry times. Then there was a little water running over the stone in the riffles. After they pumped that water down the river got bigger on both

1521 sides and the brush and trees died from that water, and it was pretty near all brush on both sides, so that the boats, if they would come up the main stream when the river was high, would run over on this corner, and then after a while run over on the other corner, and run through the brush.

Q. So it was impossible to run them?

Objected to as leading.

A. It was impossible for any boats to run up and down. There was no boat could go up in these riffles, even in high water, and the currents would strike and go straight across through these trees and brush. You could not go down the river. If you would have a boat go down the river it would run on this brush.

In my boyhood days we got across the river by fording it. The main ford was about one-fourth of a mile at the edge of the lake, what they call Joliet Lake, at Brandon's

1522 bridge. There was a ford that came down and went over the river that way and went up across the other side where the bridge is now. There was no road. That ford was

the regular road. Later all those Truman folks down there used to drive over that way to Joliet. We have taken heavy loads across there. Brandon used to cut their timber on this side. They used to tee across that ford. When there was a freshet there they could not go across. They pumped that water into the canal and sent it down. If it rained a good deal the river was big, and if it did not rain, in a few days—a week or two—the river would be low. At that time the river was not wide, but when it was big it flowed over, probably a half mile wide. When it was dry it was probably 100 feet wide.

1523 In the summer seasons when there was no freshet, usually you could walk across it on the riffles with your boots on the stones. It just seeps through. That was before this water came down where they pumped it in. There was one riffle right above Brandon's bridge. I suppose it was probably 100 or 200 feet. There was one right next to the lake there we used to go over with our boots on in low water; that is, just below Brandon's bridge where they forded.

1524 I have known other riffles down near the point where Smith's bridge is. I crossed there. There was a riffle below Treat's Island, which might have been two or three hundred feet. I drove cattle across back and forth. There was a regular wagon road across there. I think there was a riffle above Treat's Island next to the lake. There was a ford just below the bridge that went up on the towpath.

1525 That is the bridge now known as the Jefferson street bridge. They drove backwards and forwards there.

I have been on the river in a skiff,—a little canoe boat fishing. We would not drag it over the riffles; we would just stay on that side and walk below, if we wanted to fish. It was not possible to navigate even a rowboat across these riffles without you got out and pulled it.

Q. During the entire summer season, while the river was in its normal condition and not when there were any

1526 freshets could you not navigate a rowboat over these riffles?

Objected to.

A. No. It was not possible.

I am talking about way back in 1848.

The water was turned in here first about 1871. I am talking about the condition before that time. When I was a boy I walked along the river,—went after cattle. We could see

the river from the house, see the whole of it, up as far as the lake and Brandon's bridge. There was a dam there, but below that there was not.

Q. Was it possible before 1871 to navigate the river with boats even in high stages of water?

Objected to.

A. Before 1871, as I said before, you could not navi-
1527 gate the river in high stages because the river would run through this brush and timber.

I do not recollect any fences being built across the Desplaines river when I was a boy. Everything laid there in common. Cattle ran backwards and forwards, and there was nothing fenced up. I put a fence across just a little above Brandon's bridge, and at the city limits of Joliet, that was on the land that I owned and leased. Mr. Sanger had one side and I had the other. I put that up some time in 1860, or 1866; I ain't certain now. It remained there until about fifteen years ago,—from 1865 to 1893, somewhere along twenty-eight years. I don't know as it is. I leased that
1528 on the other side. I sold that place to a syndicate down there, and did not pay any further attention to it. That was on either Section 20 or 21.

Q. Will you look at this map, Mr. Adler, and then tell us if you can, what section it was that that fence was on?

A. (Looking at the map) 21, that is right.

Q. Then it was Section 21, Township 35 North, Range 10 East of the Third Principal Meridian, in Will County in Joliet Township. Is that right?

A. Yes, sir. That fence was above Brandon's ford. I think it was about 10 or 15 rods above Brandon's bridge.
1530 There was a fence up next to the city limits, South street of Joliet. I built that, it might be in 1866 or 1867. I know I bought it in that neighborhood, and when I bought it, I fenced it. That fence remained there as
1531 long as the other. I built both of those fences at the time I bought the land. If I bought that land before 1865, I fenced it before that and if I bought it after, I fenced it after. Sometimes, when I did not forget it, I would go and take these fences up in the fall of the year; if I forgot it I would put them up in the spring, but took them down in the fall, so that the ice would not carry them away. I fenced that because I leased of Sanger that land on the other side, and it saved me the trouble of fencing all around it.

The distance between the upper fence and the lower fence, kit-a-corner across, was about 160 acres, I should judge. I don't know of any other fences down there across the river at any time. I saw fences above Joliet. I soud some cows to Sanger. I went there and bought some in pasture, and
1532 I saw fences across the river there. It was a little above the state prison, two miles, or a mile and a half above what is known as the Sanger property. I saw these fences there about 1865, along there. I don't know that I saw them after. Yes, I did. I went back and forth across the river to see cattle, and I would see fences there. I cannot recollect how many years.

I don't know of any fences across the river below Joliet except the two fences I put in there myself. I know of fences that ran into the river at right angles to the river. I
1533 built fences of that kind myself, on my own land. That was later; I cannot tell what time it was. I could not remember the years; some time after I bought the land. We generally built them extending into the water, so that the cattle could not go around. Other farmers and land owners had fences of that kind. I had a piece of land below there, about a mile, and I used to run the fence in quite a ways. There are other fences run in the river there. The river is deep there.

1534 *Cross-Examination.*

Those fences which I built across the river were built many years after the canal was in operation. I understand the Illinois and Michigan Canal was put in operation about 1848. Those fences, built down into the river, were built to keep the cattle from getting out where the water was too deep for them to go around. I built the fences out. Sometimes the water was four or five feet deep. I built them so that the cattle would not wade around.

At the fords I have spoken of before they let in the water from Chicago, in the summer time, the riffles sometimes
1535 were almost dry, and then where the water was standing it was deeper. At some seasons of some years there would be very little water running over the riffles, and at other seasons it would flood the whole country. Sometimes they forded it when it was three feet deep, and occasionally even deeper than that.

I don't think there was a bridge down near Brandon's Bridge where it is now, in the early days. The bottom of the river was stone and hard, so that you could haul a
1536 load across. There was too much water there to ford in flood times,—there was in the spring of the year.

The water in the river when there was freshets would run off quick. It would go if it stopped raining. After an extremely hard rain, and if it did not rain for a day or two, it would go in two or three days. There were enough times when they could not ford the river, so that they built the bridge. When the river was big, it would come and run around this way (indicating), and this way (indicating). The rains would come right through the main stream. It ran through the timber half a mile.

1537 When the river was low it stayed within its natural banks, and when it was very high, it went out over the
1538 bottom lands. There was not any bank for it to strike when it went out of its banks. It was pretty level all the way through. There is a little bank when the river is low, but not much. In the high water, the canal bank was one bank, and then the bluff on the other side was another. There was a bank on both sides. This river is pretty
1539 flat, and when the water is high it don't lag at any of the banks, but goes through the brush and everything. After it went on southwest across the bottoms it came into the lake, and then there was a bank on each side. When the river was high and ran across the bottoms, it went until it came to a bank of some size or other, and then it turned
1540 the other way again across the river. That is true of all rivers. When the river ran over the bottoms that did not cause the old channel to be emptied, it was also full.

1541 In the old channel the thing to hinder a boat from going up and down when it was high was the riffles which were so strong it could not go up. I am not an expert on what a boat can do in water, more than to run a skiff. You could row across the river straight on one side, and probably go down to about one-half or one-fourth of a mile. You could not go up it when it was high. I don't think a sail boat could have gone up and down. It might, but I don't see as it could.

I have seen a steamboat on the Mississippi where the current was very rapid. I have seen some very rapid currents

on the Mississippi. Sometimes the boats would run against a log or brush, at other times they would go right on where they wanted to. This current here was a little stiffer than in the Mississippi, I think, a little more rapid. I went
1543 from St. Louis to Leavenworth. I think it was on the Mississippi. No, it was on the Missouri. It was in the Missouri that I saw the rapids. I don't know as the current there was stronger or not stronger. I never saw a boat try to go up the Desplaines on these rapids. In these times, of this great current, the river was spread out probably half a mile wide, and probably it was five or six feet deep,—somewhere around there, on the riffles. I don't know as it was more than four. I never was on it when it was high to measure it. This water that I referred to being pumped into the Illinois and Michigan canal was the water pumped in at the Stock Yards, Chicago. It ran into the river here at the
1545 upper basin,—that is, right here by the State's Prison. Some of it ran in at Lockport.

I think it is according to how heavy the trade is, how deep water is necessary for commercial traffic. I think if
1546 you have 8 or 10 feet, it would run a good skiff across it. I should think that the water ought to be not less than 10 feet in the river in order that it may be navigated for commercial purposes. Probably it can run at 8 feet, or 7 feet. I am not positive on that,—only just what I see.

I think my fences built across the river were 15 or
1547 20 rods above Brandon's Bridge; that is the lower one,
1550 the one further down the river. (The witness was here shown a map, previously referred to, and indicated the lines of his land thereon.)

The WITNESS (continuing):—Instead of its being 10 or 15 rods, I think it was 80 rods. I see now, between this road and that section line is Davidson's. I didn't own the land shown on the map there, marked "Pioneer Stone Company's land," but the fences ran right along up to the canal. It was undoubtedly in Section 21.

1551 Q. Then undoubtedly it (referring to the land fenced by witness) was in Section 21.

A. Yes, if I was studying on it and had been looking at it, I could tell better than I could at random when I don't know anything about it.

Q. Do you know as a matter of fact whether it was in Section 20 or 21?

A. Well, it was in Section 20.
COUNSEL FOR DEFENDANT. 21.
A. 21. It was in Section 21.

Re-direct Examination.

1552 It is a fact that the lower fence that I built on my land was in Section 21.
1553 Q. After I called your attention to the fact that it was Section 21 a few minutes ago, you looked at the map and said yes, it was Section 21.
Objection by counsel for complainant on the ground that the question was telling the witness what to say.
A. Yes.

1554 WILLIAM S. BURT, a witness for defendant, testified as follows:

Direct Examination.

My name is William S. Burt. I live at No. 708 Prairie avenue, Joliet. It will be eight years in March since I moved in here this last time. I lived 2½ miles northwest of Lockport before I came to Joliet. That was in Will County. I moved there in 1865. I lived there continuously from 1865 up to eight years ago about 35 years. Before '65 I lived in
1555 different places around Lockport and Joliet. I was born in the State of New York in 1830. I came to Chicago the 1st of October, 1850, and came to Will County the next day, and have lived here continuously since 1850, except for a few months' time.
I farmed quite a little bit when we first came to the country. I was boatman on the canal for five years. I was living in town up in the '60s, keeping a saloon here in Joliet. When I left town in '65, I went out on a farm. Before that time I had a farm for three or four years, east of Lock-
1556 port, away back in 1858 or '59. I managed the farm all the years I lived there. Before I came here in 1850, I was on the canal, on the Erie Canal in the State of New York. I was employed there about eight year. My duties were everything from driver up. On the Illinois & Michigan Canal, in the first place I was on the packet boats one year

and a share of another year. After that I was running a boat from Lockport for a Mr. Martin a couple of years, and then a boat from Lemont, a stoneboat. I am fa-
1557 miliar with the kind of boats they have used on the Illinois & Michigan Canal. The boats were I think, about 105 feet long, and they must have been about 15 to 18 feet wide. They were allowed to load them down to 3 feet and a half. Of course they could load deeper than that, but that was as deep as they could be allowed, on account of the depth of the water in the canal in places. The water in the canal, I presume, was something like 4 feet deep.

COUNSEL FOR COMPLAINANT. I want to object to each and every question concerning the navigation and depth of water in the Illinois & Michigan Canal.

Q. Please state where the shallow places were in the canal between Joliet and Chicago.

1558 A. There was a place a mile or such a matter from Willow Springs. There was a little creek in there of shallow water, that was the only place I knew between here and Chicago.

I have been familiar with the Desplaines river since 1850, going fishing sometimes, something of that kind, I never was on it on the boats, rides or anything of that kind.

From here to Lemont the Desplaines river runs pretty near the canal. Below here, after you get below Brandon Bridge, it is not so close, nor above Lemont. I never knew that be-
low Channahon the canal turned in near the river and
1559 run along close by the river up a ways. I never noticed it. I was on the Desplaines river fishing. I don't know the first time I went fishing. It is pretty hard to tell. I never was much of a fisherman, just go occasionally. But I don't think when we first came to the river I went fishing for four or five years. When I first came to the river, it was customary to cross the river at Lockport Bridge, a wooden low bridge, and at Romeo, I won't say whether there was any bridge or not. I did not cross any place only at Lockport. Below Romeo I just walked across. There was no bridge at Romeo near 1850. There was no bridge till you
1560 got to Lockport. I don't know anything about how the farmers hauled their loads across the river below Joliet. In 1850 there was a dam at Lockport that stretched clear across the river. It was known as Daggett's Mill. There was a dam here at Jackson street, another at Jeffer-

son street, another one down here, I guess they call it Adam's dam. There were three dams at Joliet that stretched clear across the river. This dam I speak of as the Adam's dam,
is sometimes referred to as the Haven's dam, and at
1561 other times as the Malcolm dam. That was situated
somewhere near McDonough street. The one at Jackson street was substantially at the place where the Economy Light & Power Company dam now is, known as Dam No. 1. I do not know of any other dams that were in the river at that time. I had no opportunity to observe the river below Joliet. I don't know anything about the dam at Treat's Island. I never was at Treat's Island but once. I didn't
notice any dam then. I do not know whether there ever
1562 was a dam at the place called Dresden Heights. These
three dams at Joliet were so constructed that boats could not go out through them. There was a lock for the canal boats on the side. There were no locks in the dam at Lockport.

Q. Now, from your familiarity with the river, will you please state what was the normal condition of the river with respect to depth of water during the summer season, say beginning about the first of May, and ending about the first of October?

COUNSEL FOR COMPLAINANT. I object to his question, because the witness has not qualified himself to answer. What he has given of his knowledge of the river does not qualify him to answer these questions.

A. Why, the depth of the river in some places varies very much.

In some places there wasn't more than a foot or so of
1563 water. Of course there were riffles and there were places
with water 2 or 3 feet deep in deep places; very many places where you could walk right across by stepping on the stones without getting your shoes in the water.

Q. Was that the general and usual condition throughout the entire summer season of every year? I mean by usual conditions, normal conditions, when there was no freshet or flood?

Objected to as leading and suggestive.

A. Yes, sir.

Q. State whether or not there was a good many shallow places in the river, or rapids or riffles.

Objected to as leading and suggestive.

A. Yes, sir.

Take it from Lockport, between Lockport and Romeo, there were more places you could walk across the river than there was where there was a depth of water, so you could not. This side of Lockport, there seemed to be a little more water. Of course they got some water from the canal there through the mill race. That was after 1871. Before 1871 I
1564 wasn't so much acquainted with the river below Lockport. Some of these rapids would be 15 or 20 rods long, some of them not so long. Some of them would be only just in small places a few rods. I crossed over the river at this point a good many times.

Q. Was it possible to navigate boats up through these rapids or riffles without getting out there and bringing the boats with you?

Objected to.

A. No, sir.

Q. Was it possible to navigate even a low boat or a skiff up through those rapids in the ordinary and normal condition during the summer season?

Objected to.

A. No, sir.

I never knew of any boat or boats used upon the Desplaines river at any time for purposes of commerce; that is, transporation of freight or passengers.

1565 Q. If there had been any such boat or boats used, would you have known it?

Objected to.

A. It seems as though I would.

Q. Did you ever know or hear of any boat or boats of any kind used for commercial purposes, being on the river below Joliet?

Objected to.

A. No, sir.

It was customary at the time I first came to this country for farmers to take their produce to the Chicago market by the canal. I did not even hear or know of any farmers in Will County taking their produce to the Chicago market by way of boat on the Desplaines river. I never heard of
1556 any merchandise being brought up the Desplaines river from the south by boat.

Q. Did the packet boats that plied upon the canal at the

time you were employed there, carry passengers as well as freight?

Objected to.

A. Mostly passengers.

They had sleeping and eating accommodations. They used the regular cabin for dining room at meal times. At other times they used the regular cabin for lounging rooms. The boats would carry better than 100 passengers. These
1567 passengers were going to La Salle to take the steamers from there. To make the trip from Chicago to La Salle by way of the canal boat, would take about 24 hours by a passenger boat; by a freight boat, about four days.

Questions pertaining to canal and its boats objected to; motion to exclude answers thereto.

I have known in late years of fences being constructed across the Desplaines river, wire fences, something of that kind. I don't remember any fences across the river in 1850. I think the first fences that I could ever be positive about, is since '65. I lived not far from the river, and I had occasion to go to the river quite a good deal. There were fences across the river then. That was two miles and a half northwest of Lockport. There were two fences right here. There was a lane that ran down from the main road, and we
1568 used to have to put our cattle there to water a great deal in the summer, because we had no water in the summer. I know there was a fence each side of that lane there at the river. It was a wire fence that stretched clear across the river.

It remained there for 33 years that I was there, except when the high water or something of that kind would carry it away. The fence was rebuilt from time to time during that period. One side of the fence was kept up by a man named Whitman. His land was on the north side of this lane, and I think the other side was kept by by Fitzpatricks. There was another fence about a mile above the Lockport road,
1569 running between Mr. Allen's and Fitzpatrick's. That was above Lockport about half a mile. There was just one fence there. I noticed it soon after '65. It is there yet so far as I know. I saw it frequently up to five years ago. I don't think of any other fences. I think I could locate the number of the section upon which the first two fences
1570 were constructed by looking at the map.

Mr. MUNROE. What township is it in?

COUNSEL FOR COMPLAINANT. I object first to the question, because there is no proof that the map is in any sense correct, and second I object to counsel or to Munroe furnishing the map and the page with the section indicated to the witness.

Mr. MUNROE. What township is it in?

A. I think 36 Lockport.

(Whereupon the witness examined the map.)

Mr. MUNROE. Here is Romeo up here.

A. I think here is one fence I speak of between Allen's and Fitzpatrick's; I think the other fence is here, but it was not up there next to Alexanders'. It seemed as though it must have been here some place in Section 15 according to that. It must have been Section 15, Township 36. It
1571 must have been on the section line. My place is on the north section line of Section 15. The other fence was two rods below it. The third fence was between Sections 15 and 22.

Cross-Examination.

1572 One of the fences would be on the north side of Section 15; another one was about 2 rods south of that in Section 15, and the third would be on the south side of Section 15, between it and the section line south of it, which
1573 would be 22. There were two strands of wire. I have not been on the river so very much. For the first five years I did not go fishing at all, and have gone very few times after that. I used to have to drive my stock to the river to water pretty much when I was on the farm in the summer time. That constitutes the fishing that I was speaking of, and crossing the river and driving my cattle to the river constitutes the sum and total of my time on the river. The motive power of the packets that run on the canal was horses. The packets go about 5 miles an hour. The horses went a slow trot. While I think there was a limit of speed; that is, they could not run so fast as to throw the water over the banks to endanger them. From Lockport to Romeo, it is 3 miles, to Lemont, 8 miles. I said I was able to cross
1575 the river there stepping from stone to stone. I refer to the low water times. There were times when the water wouldn't be 6 inches deep. That would be quite a dry ordinary time. In ordinary stages of water, it would be a foot or a foot and a half, and those were the shallow

places in the river, and in high water it would go up to 5 or 6 feet.

In high water between Romeo and Lemont, the river would be a mile wide nearly; 3/4 of a mile anyway sometimes. It might be 4 or 5 feet deep or 6 in the channel. The channel between Lockport and Romeo would be 30 or 40 feet
1576 wide. I have a good idea of what 30 or 40 feet would be. Of course where those places were, there likely would be islands. The channel was divided; part of it was on one side and part of it on the other. There were mostly flat stones in the river, a kind of limestone. They varied in size, sometimes as much as a man would want to lift. Sometimes they wouldn't be any bigger than your hand. You could pass sometimes over the stones without getting your feet wet at all.

1577 DAVID LAYTON, a witness for defendant, testified as follows:

Direct Examination.

I live in West Linden avenue 112, in Joliet, Illinois. I have lived in the city proper for twenty-five years. Before that I lived up here in the Town of New Lennox. That is the last place I lived on farms, but I was raised out here about two miles from town. I was not born in Will County. I was nine years old when I came to Will County. I was born in 1828. When I first came to Will County, I lived out
1578 here about two miles southeast of Joliet on a farm. My father managed the farm; we did not live there many years. My father did not own any land at that time, and we lived right around in the neighborhood. After that we lived on Deacon Scott's farm near Joliet about 3 miles; lived there 2 years.

After that we lived down here at Joliet Mounds in Will County. I have not lived in Will County continuously
1579 since I first came here. I was gone about 10 years—from 1869 to 1880, when I moved to western Missouri. With that exception I have lived here continuously.

Part of the time I kept a grocery store in Joliet. Well, I ought to be familiar with the Desplaines river. I have travelled up and down it a good deal fishing and so on. Between '37 and '48 I was familiar with it. During those years I fre-

quently was fishing in it, half a dozen times or so from the head of Lake Joliet up as far as Joliet. Sometimes I
1580 was up as far as Romeo. In 1837 I think there was a dam at the Haven saw mill. That was just below the Rock Island bridge. The Haven mill was between McDonough street bridge and the Rock Island bridge. That dam was sometimes known as the Malcolm dam, and sometimes the Adams dam. There was no way in which boats could go up and down from that dam. I cannot tell you when I first saw it, probably 1840, the first that I remember seeing it. There was a dam at the Jefferson street bridge here in Joliet. In '48 I think the Canal Commissioners built the dam.

McKay had a small dam there; that is, in '37, there was
1581 a small dam called the McKay dam, near the place which is now known as the Jefferson street dam. That dam which was built by the Canal Commissioners is the dam known as Dam No. 2, and is not in existence now. There is no dam there. This state dam was built to make a basin, so that
1582 boats could come from the canal down there along the warehouse. The McKay dam was taken out of the river about 1842 or '43. Then afterwards the state built a dam near the same site across the river. I cannot tell the year that was taken out. It was when the Drainage Canal started operations.

I cannot think of any other dam in the river at the time I first come to Joliet. The dam at Hyde's mill was built
1583 afterwards, I think. That is just about above the Jackson street bridge, about the place where the dam of the Economy Light & Power Company now is. I don't remember the dam known as the Norman dam at Lockport. I know there was a dam, but I cannot say what kind it was there. There was an old mill just west of Lockport, but they had a temporary dam. It was not across the river either really. I am familiar with the river below Joliet. I think there was a dam at Treat's Island. There was not a mill there while I knew it. I know that the dam was there, but the mill was gone.

There was a dam this way down we used to call the Aqueduct, there was a dam there that was close to Dresden
1584 Heights. That is sometimes referred to as Boardstown. I saw that dam when I first came here. There was not a mill there at the time I was there. The mill had

gone. It was not possible when I saw the dam for boats to go up through it and go down the river to it.

I know there were rapids or riffles in the river. I cannot tell where all of them were exactly now. There was one
1585 below where they built the tinplate mill at the mouth of Hickory Creek. I walked across that many times. That is near the south limits of Joliet. I could not tell you the extent of those rapids in length. I have carried a boat round them several times, but I don't know the distance.

Q. Was it impossible to get the skiff through them?

A. Not any time it wasn't.

There was another rapid at Brandon's bridge at the head of Lake Joliet. The extent of these rapids in length was, I suppose, 20 rods.

Q. Was it possible in ordinary seasons to navigate a boat over those rapids?

A. Oh, no.

Q. What other rapids do you recollect being in the river?

A. Well, I cannot tell you exactly how many there were several.

Q. Do you remember of observing the rapids at Treat's Island?

A. Yes, sir.

1586 I have had occasion to cross there. It was not possible to navigate a boat over those rapids. That was 15 to 20 rods long. I don't know the exact extent of the rapids at Smith's bridge. I remember observing the rapids down at Beardstown. I don't know how long they were, but I know they were very rapid. They ran pretty rapid across there when the water was up. It was not possible to navigate a boat over those rapids, either up or down. I remember that there were rapids above Joliet, but I cannot locate them just now just where they were, because I fished there years ago clear up as far as Romeo in the deep places.

1587 I had occasion in my boyhood days to cross the river a great many times. The customary crossing was down below the mouth of the Hickory Creek, and another one down at what we call Brandon's bridge. There was regular wagon roads crossing the stream at this point. I don't remember that there was any wagon road right in the City of Joliet crossing the stream.

Q. Don't you remember that there was a ford in the City of Joliet?

Objected to as leading and suggestive.

A. I don't. There wasn't much sediment up there in them days.

1588 In the flood seasons there was considerable water in the Desplaines river. As to the normal condition of the river with respect to depth of water during the entire summer season, beginning with May 1st and ending we will say, October 1st, excepting as I say the pool places, there was sometimes considerable water, but in these riffles and shallow places, there wasn't any water at all hardly, just very little, excepting when there were freshets. These freshets would last 2 or 3 days, but the water would soon run down, because it was very rapid. It was not possible to navigate a rowboat up and down the river over those various rapids and riffles during the ordinary and normal state of the water at any time, excepting when there were freshets. It was not possible because the water ran so rapid.

1589 There were a good many rocks and boulders in the river at the point where these rapids were. As I say, I have walked across and not wet my feet at those places just below the mouth of Hickory Creek in summer time. Sometimes there was not over two inches of water in some of these rapids, and sometimes it would be more. It did not range much deeper than that.

I have never seen any boats carrying freight or passengers, or used for commercial purposes navigating up and

1590 down the Desplaines river, at any place, at any time. I never heard of any being navigated. I never heard of any merchandise or produce being transported up from the Illinois river. They used to haul merchandise by team from Ottawa to Joliet. It could not come up any fur-

1591 ther than Ottawa before the canal, and we used to go down there and bring it up by teams. Merchandise and produce between Chicago and Joliet was brought always by team. I hauled wheat up to Chicago when I was fifteen years old, in 1843. I hauled grain three or four times after that. I never brought back anything.

Between 1837 and 1848, it was customary for farmers in this vicinity to get their grain or produce to the Chicago market by team. The road was not very good,—in some

1592 places, that is sure. It was swampy. My father came to Joliet in 1837 by team from Indiana.

I saw at one time there was a wire fence across the Desplaines river below the mouth of Hickory creek. That was

about 1852, or 1853; I could not tell exactly the date. I
1593 saw it there one summer,—that is all. I was fishing down there. I don't know how long it stayed there. I never saw any other fences across the river. When I went fishing we put in our boat at the head of Lake Joliet generally, and we did not use the boat without it was to spear in the night. We kept the boat at home. We hauled the boat by team and put it in the stream at the nearest point to our home. When we came to the rapids or riffles we carted it around. We usually fished near here from the head of the lake. In fishing from the head of Lake Joliet to the City of Joliet we would have to carry out boat around the rapids three or four times.

1594 In some places there might be water, but it would be so swift that we could not row it up. In other places there would not be water enough. We usually fished about the middle of May. The water then would be a little higher than it would be in the later summer months.

Q. So, as I understand you, the only place where you could navigate your boat properly was in the pools or ponds that occurred from place to place in the river.

A. Yes, sir.

I remember when the Kankakee feeder was being con-
1595 structed, but I had not been down there yet at the time it was done. My home where I live, just south of Joliet was about a mile. We lived less than that, but the last place we lived before my father died was maybe one and a half miles.

Cross-Examination.

The roads from Joliet to Chicago were common prairie dirt roads, and in that early day people had not worked them much, so that it was just a road or path, or trail across the prairie; and in the condition that the prairie roads in this region were at that time,—sometimes good, sometimes bad.

1596 We never teamed any in the muddy times,—in the spring time. In the summer times the roads were pretty good. At the place where I spoke of crossing the river by stepping from stone to stone, the water might have been three or four inches,—maybe more. It would just run between the stones. It was not a foot. When I did that, I cannot recall the years; it was before 1848.

1597 The fences that I spoke of was in 1852 or 1853, after the canal was built and in operation. We crossed that

place below Hickory creek, where the water was three or four inches deep from spring to fall. We lived below there. That was our regular road. The teams went there in the sum-
1598 mer months. I don't remember the condition in 1876. I was not here at that time. When the river was at high flood, it spread over considerable land down here. I could not tell you how wide it would be,—probably 80 rods, that would be one-fourth of a mile. I could not tell you how deep it was, because I never measured it. It might be four or five feet. I did not measure it at high time, or low.
1599 The ford at Hickory creek was a mile below the dam,—a mile down the river. There were no dams, except what you call Malcolm and Haven dams.
1600 Q. You said in your direct examination, did you not, and it is true also, is it not, that sometimes in places where you took your boat out and carried it around the rapids was because the current was so strong that you could not handle the boat in it?

A. I said they could not handle the boat.

Q. In the current.

A. When the water was high. If the boulders had been out of the way in the shallow places, you could not have taken your boat up in dry times. At such times the river might have been 10 rods, or 15 rods wide. I could not tell you exactly, because I never measured it.
1601 I don't know for certain whether the fence I spoke about went clear across the river or not. I suppose it was put in to turn stock in it. It was the only fence I remember about.

1602 JOHN P. KING, a witness for defendant, testified as follows:

Direct Examination.

I have lived in Joliet; I have lived here 41 or 42 years. I have lived in Will County about 73 years, with the exception of 12 years, when I was in California. I came here in 1834. I was born in 1832. My parents came to Will County by means of a wagon and oxen from Indiana.
1603 Up to the time I was about 23 years old I was on a farm, farming, and after that I went to California and stayed twelve years, and when I came back, I went into the

lumber business, and have been in the lumber business ever since, in and about the City of Joliet. I was 16 years old in 1848.

The method before 1848 of transporting grain and produce and merchandise between Chicago and Joliet was by team only, till after they got the canal going. I didn't know or hear of any grain being transported between Chicago and Joliet by boat on the Desplaines river. Before 1848, I didn't know or hear of any freight or merchandise being transported up and down the Desplaines river below Joliet by boat on the river.

In the days before 1848 there was a good deal of mer-
1604 chandise brought up to La Salle on the boat and from there hauled by teams. I never knew of any boat being navigated on the Illinois river up and down for commercial purposes before 1848 or after. I never heard of any such boat being operated or navigated on the Desplaines river at any time. I am familiar with the river. I had occasion to go on it and across it before 1848. The method before 1848, of crossing the river with teams, hauling loads was to cross the riffles. There was regular wagon roads crossing the river in those days. There was one down here at Brandon's bridge. There was one at Treat's Island. They crossed the island and forded the two streams. Part of the river goes down on one side and part on the other. There was a road across both of those channels. The farmers and everybody else who wanted to go across the river had to go that way. There was no other way. They crossed there at any time of the year except in high water. There was no other
1606 ford at Smith's bridge. There is a regular wagon road across there. I don't remember any other fords except here in Joliet before they got bridges. For a short time they forded the river in Joliet, but it was not a very good ford. They built a regular log bridge,—a cheap concern. There was a ford at Lockport that was commonly used by the farmers in hauling loads.

I was on the Desplaines river in a boat down in Lake Joliet. I have been along the Desplaines river above and below Joliet, but not in a boat. When the water was high on the river, it was generally too swift and dangerous for a boat, and if it was not, it was too low,—you could not get along. There were a few boats used on the river before 1848 for fishing and canoeing.

Q. You are familiar, are you Mr. King, with the river, generally speaking, from Lockport down to its mouth.

A. Well, yes. I have been along it all the ways pretty much. During the summer seasons it was sometimes pretty low, and on the riffles if you would pick your steps you
1608 could cross on the stones. You could almost cross most of the time, and sometimes you could cross it dry-footed. The first of the rapids was this side of Brandon's bridge, below the Jefferson street bridge.

The rapids don't start much until after you get pretty near out of the city limits of Joliet. I would not undertake to say exactly how long the rapids are at Treat's Island, but I think they are a mile. The river down near the mouth is pretty rapid,—that is near Beardstown, or what is known as Dresden Heights. Those rapids must run up one-half mile.

There is a good swift fall from the head of Treat's Is-
1609 land down to the mouth. I could not tell you how swift the current is there,—is pretty swift. A skiff could not be navigated below Treat's Island. I have seen the river at flood stages when it would be very dangerous to cross it. It would not have been possible in flood time to navigate a skiff or row boat in that part of the river above Lake Joliet, near and above Adams dam. I saw that part of the river frequently before and after 1848. A skiff or rowboat could not

be navigated up that part of the river during flood sea-
1610 son, because the water is too swift. If you wanted to take the chance of getting drowned, you could navigate a skiff down the river between those points during flood season; I would not want to do it.

I was not so familiar with the river up above Joliet. Still, it had a good current in there when there was high water. I have seen the river when it was not possible to navigate a skiff; you would get out and pull it along between the rocks.

Q. Well, I am taking the river at its usual stage, Mr. King, when there was no freshet on. Would it be possible at any time during the summer season to have navigated a boat?

A. You mean all the time, when there was no freshet on?

Q. Yes.

A. Well, they might possibly go down some of the time, but not all the time.

1611 You might possibly float it down most of the time, but you could not get up very well. It was not possible during any time of the summer season to navigate a boat up and down the river for commercial purposes.

I heard them say there was a dam at Beardstown. I don't remember personally.

Before the canal was in operation in 1848, there was a dam here at Joliet. There was one at Malcolm's mill. The Havens put in a dam there, they had a sawmill. That is called the Malcolm dam, sometimes the Haven dam and sometimes the Adams dam. Before 1848 there was a dam right here on the north side of Jefferson street. That was known as the McKee dam. There was a dam where Jackson street now is in Joliet. I don't know whether that was prior to 1848, or not. I don't remember the existence of any dam in Joliet prior to 1848. I think there was a grist mill, below Lockport they had a dam there.

I have seen fences in the river to let the stock drink. I think right below town there is a fence across the river between here and Brandon's bridge. The fence was clear across the river. That when when I was a boy. I don't know how long it stayed there. I saw it often. It might have been
1614 a good many years. I am not positive of that. The other fences that I remember were fences which the farmers built down into the river for a short distance, so as to prevent their cattle from wading around.

If the river had ever been navigated by boats for commercial purposes, I think I would have known of it. There is no navigation in the river now for commercial purposes.

Before 1848 I did have occasion to go to Chicago with grain. I hauled it by team. I never was up there very much myself. I might when I was just big enough to drive an extra team with a load, when my father would go. He used to
1615 haul his grain there and get supplies from there. The other farmers in Will County got their grain there the same way. That was the principal market for farmers in this vicinity. I did not ever hear of any grain being taken up to Chicago on the Desplaines river before 1848. There was a stage line running which brought passengers from Chicago to Joliet. They had a station here and it ran down as far as Peru or La Salle. It ran only about three times a week. The name of that stage line was Frink and Walker.

I didn't ever hear of anybody coming down from Chi-
1616 cago to Joliet, and down the river from Joliet by boat. I don't think anybody teamed it back and forth regularly carrying produce and merchandise for the farmers.

Cross-Examination.

When I spoke of crossing the river from May to October, I meant from the first of April up until the fall. The
1617 spring floods come in always along the last of March. The river would be at its lowest stage in May, June, July, August, September and October. The river is not generally pretty high in May. I have seen it in high water
1618 when you could not cross the river or ford it. It would be just as true to say that you can ford the river in low water, as to say you cannot ford it in high water. If it was too high, you could not ford the river. They used to ford the river when there were two, three or even three and a half feet of water at the fords.

In order for a river to be navigated for commercial purposes carrying freight and things, the water necessary would depend upon how heavy freighting you wanted to be done. If it was light you would not require much water.

To conduct a commercial traffic on the river with boats, in order to make it profitable you ought to have a depth of three or four feet of water.

Q. And when you have spoken about it not being possible to have commercial navigation on this river for want of
1619 water you meant because there were not at least three or four feet of water in the river?

A. If it was rapids it would need a great deal more than three or four feet, and then it would not make navigation.

Q. It would depend upon the character of the rapids?

A. Yes, sir.

Q. The other things that you had in mind were those rapids, and some boulders and stones in the river, was it not; the other things you meant would interfere with commercial traffic?

A. Yes, sir.

Re-direct Examination.

When I could cross the river at the riffles or rapids without getting my feet very wet was perhaps two or three months in the driest part of the season.

1620 Probably five or six months of the year the river would be at such a stage of water that it would be impossible to navigate rowboats up and down over the riffles without dragging the boats.

Re-cross Examination.

That five or six months includes the time when there was not enough water on the one hand; and then when there was too much, and the current too great. During five or six months of the year the water was not sufficient for that kind of navigation. The other six months would include the winter
1621 when the water would be very low, too. There would not be more than two or three months in the whole year when they could get over the rapids, and then they would have to take chances. What I mean—the water would be low at least nine months out of the year. Ordinarily the water over the rapids on those low places would be a foot or a foot and a half deep; and in some places three or four inches.

1622 ADAM COMSTOCK, a witness for defendant, testified as follows:

Direct Examination.

My full name is Adam Comstock. I reside in Joliet My parents came here in 1836. In 1837 they moved out onto a farm about five miles out, bordering on Lake Joliet. In 1841 they came back to Joliet and that has been my home since. I was born in 1827. My business has been surveying and railroad engineering; have been in that business since about 1851. I commenced on the survey of the Rock Island Road here. Afterwards I have been county surveyor and city engineer and city surveyor, and have been engaged on railroads in Wisconsin, Illinois, Kentucky, Mississippi, Arkansas, Mis-
1623 souri, Kansas and Colorado. When my parents first came to Joliet they came from Detroit with a team.

I remember the days before 1848 there was a dam here we called the McKee dam. I recollect our fording the river just a little ways below the dam. From 1841 to 1848 I was very familiar with the Desplaines, used to go hunting down along the river and wade across it at different places. From here down to its mouth I was familiar with it, not so much above Joliet. Before 1848 I was not in business, only hunting took me along the river. I do not recollect going on the river in a boat prior to 1848, hunting or fishing. As to the depth
1624 of the water in the river between '41 and '48, I could wade across it without going over my boots. That

would be in the latter part of the season, from the time ducks came along in September up to the time the river froze. May first the river would be high probably, the spring freshet. It would last a long time, June, maybe, that the water would be rather above the normal. Then from June to November the usual normal condition with respect to the depth of water was about as I said. The water might be a little deeper along in the first part of the summer, would not get its lowest maybe till along after July. During the summer season the water over the rapids and riffles would be
1625 less than a foot and a half. I am familiar with the rapids and riffles in the river below Joliet. The first riffles were along about the islands below town, just below South street, before you get down to the head of the lake. Some part of the way it was more shallow and rapid than in other places. Practically the entire distance down to the head of Lake Joliet, about a mile, I would call rapids or riffles. West of the second island there was a slight pool for maybe seven or eight hundred feet, and then at the foot of a second island there was a sharp rapid there and then down where the first bridge is there was quite a sharp rapid. The last place I mention is where Brandon's bridge now is; that is included within the mile of rapids that I speak of. Below these rapids was a rapid at the head of Treat's Island and one at the foot, and one at the mouth of the Du Page. That at the head of Treat's Island was not, I should judge, more than a thousand feet long. Then there was a pool along
1626 the middle of the island and at the lower end was a rapid perhaps 600 feet long. Below Treat's Island, at the mouth of the Du Page, there was quite a sharp rapid, not very long, and then down at the mouth of the river there were rapids at the place sometimes called Dresden Heights and sometimes called Beardstown. I could not tell the extent of those rapids, about a mile, maybe. I could not tell the velocity over these various rapids below Joliet. Personally I know that from South street through to the head of
1627 the lake there was a 10-foot fall in about a little over a mile. I do not know what the fall is from below the head of Lake Joliet to the mouth. Personally I do not know anything about the fall of the river between Lake Joliet and its mouth.

Q. Do you know from your personal observation that there

was a considerable fall of the river from Lake Joliet to the mouth?

Objected to as leading.

A. Oh, yes; these rapids indicate that.

1628 The WITNESS. The normal and usual condition of the river upon these various rapids, as to depth of water, was that it would carry from something like a foot and a half to maybe six or eight feet. The foot and a half stage would prevail three-quarters of the year, probably; the remaining quarter the river would be flooded. When the water was a foot to a foot and a half over these rapids, they would worry skiffs along over them by pulling them over the rapids going down. They would have a hard matter getting up. They might worry them along and they might have to push them along, or get out and pull them along. A skiff that could go into shallow water, they would probably row along

1629 right close to the edge of shore and keep within the current, and they would take their chances of going down in the high water. They would have to be pretty skillfully handled or they would be apt to capsize. A skiff I should say could come along up the river in high water and keep close to shore. I do not know of anybody rowing a skiff up the river from its mouth to Joliet during the high water season. I did not hear of anybody having done it or having taken a skiff down to the mouth during the high water season. There were not many skiffs or rowboats in the river in 1848. There were not any boats used for other purposes than hunting and fishing and pleasure boats. I never knew of any boats used in the Desplaines river for purposes of commerce such as carrying freight or passengers. I never heard of any such boats before 1848 or afterwards.

Q. If there had been any such boats in existence here you would have known it?

1630 Objection by counsel for complainant.

A. Most assuredly I would. It would have been a matter of general interest to people if there was any commercial navigation on the river. I do not remember that in the early days of my experience I talked with old residents with reference to the previous condition of the river. I was acquainted with many old settlers, but do not remember ever discussing that subject with them. In my boyhood days there were bridges across the river, a couple of bridges built before 1840. I do not remember about them. That was when

we were living on the farm. After that, there was a bridge built across at the little island just below Jefferson street. The usual method of crossing the river in those days, prior to 1848, was fording or using these bridges. There were regular wagon roads across at the fording places. It was customary for the farmers to haul loads across. The canal
1631 was built along here about 1840. That shut off everything except where the bridges were. There was only one bridge then, the one at the little island just below Jefferson street. There was a bridge across the canal right where the present bridge is. I do not remember about crossing the river previous to 1841. I do not remember crossing previous to 1848. There was a ford down at the head of the lake and there was a ford across Treat's Island, another just below Treat's Island, and one down not far below the county line where the old mill stood. I have crossed at all these fords. During the summer time at these fords the water would be a foot and a half or less.

Q. Have you ever crossed the river at any of these rapids, when you would not get your feet wet?

Objected to.

A. At Treat's Island and at the islands below town and at the head of the lake I have waded across without
1632 getting my feet wet. There was a ford just below that we call Brandon's bridge, right at the head of the lake, that used to be used before there was ever a bridge built. I remember there was a dam in the river down near Beardstown, about a mile this way. I remember the old mill; I have been down there when the old mill was standing, but I haven't any recollection whether the dam was there then or not, or whether it had gone out. I saw a mill there that had been operated by means of water power. The mill and surroundings were in such condition that I knew a dam had been there. I think it must have been about 1847 or '48 that I first saw that. I haven't any recollection of the dam. My impression is that the ends of the dam showed where the dam had been.

I was never informed when the dam was built. I have
1633 seen the abutments and ends of the dam.

Q. And you know that there must have been a dam there on account of the mill?

Objection by counsel for complainant, on the ground that the question is leading.

A. Yes, sir; on account of the mill there must have been a dam.

The WITNESS There was a dam across one branch of the river at Treat's Island, then there was the Haven dam in town, and dam No. 2 and No. 1, the state dams. There was a dam at Lockport previous to 1848. I have seen the remains of an old mill near where the penitentiary now is, but it was not in operation. I do not remember any particulars about the dam.

Q. As to those dams that you do remember, those three dams in Joliet and the dam at Lockport, these were constructed clear across the river?

Objected to.

A. Yes.

It was not possible for boats to go up and down through those dams. There was a lock here at Dam No. 1 after
1634 that was built; that was not a lock into the canal, which crossed the river here. The canal and the river were together then. The canal and the river were the same above the dam and the canal and the river were together below the dam. That was down to Dam No. 2. There was no chance to get through No. 2 near the Haven dam. The water above No. 2 was turned into the canal. Before the canal commenced to operate in 1848 farmers got their produce to the Chicago market with teams. People traveling down this way came either by stage or their own teams. I do not know that considerable merchandise in those days was brought from
1635 points on the Illinois river up to Joliet. This stage line from Chicago must have gone down to La Salle and there was a line to Springfield and St. Louis. It would not have been possible to operate boats for commercial purposes, carrying freight and merchandise or passengers up the river through these various rapids that I have mentioned, even if the dams were not there. They say jokingly about these little sternwheel boats that they can run up on a heavy dew, but they could not one of them run up on these rapids. Produce was brought from away down beyond this, wheat, I think. I have seen teams come along here that were said to have come from away down near Bloomington, going to Chicago. I never heard it claimed prior to 1848 that the Desplaines river was navigable in fact. I never knew of any commerce being carried on prior to 1848 over the Desplaines river by boat, and I haven't known any since. The dam sometimes called the Adam dam, sometimes called the Haven

dam and sometimes called the Malcolm dam, was con-
1636 structed while we were on the farm, between 1837 and
1841 I do not know when the McKee dam was constructed; it was there when we came to town in 1836. I do not remember when that dam was taken out of the river and Dam No. 2 was constructed by the state. Let's see, the state failed sometime along in the '40s and the work was not finished. The canal banks were built through here in '41 when we came back to town. I know the banks were finished and the dams, some of the masonry was not done until later on, 1845, '6 and '7. The dam was gone when we came back from the farm in 1841. I do not remember when the Kankakee feeder across the river near its mouth was being constructed. I do not know where they got stone to build the abutments for that feeder; do not know where they got the
stone from that was used to build the Aux Sable locks;
1637 I haven't noticed the stone down there particularly. I never knew of any stone being transported down the river by boat for the construction of that feeder; there could not have been without my knowing it. The quarries that were used in building those locks and dams were situated above here in what they called North Joliet, above Dam No. 1, and if they had ever quarried those stone up at those quarries and hauled them clear down below Haven dam I would have known it. They couldn't have hauled them down without my knowing it. The only stone quarries in Joliet at that time, before 1848, was above what is known as Dam No. 1, and there would be no way of getting that stone onto boats except by carrying them around the Adam dam. I know there
was no stone taken from that Joliet quarry for use down
1638 the river. I have seen wires stretched across the river
up above here about two miles and half; it has been since the canal was opened. I do not remember but just one place where there was some wires. I do not remember whether that fence remained there for a long time or for a short time. The river bottom at the places where these rapids and riffles were that I have testified to was stony, gravel and boulders most generally. There were some large boulders. When I was engaged on the canal a party was sent to Chicago twice with a team.

1639 *Cross-Examination.*

These dams that I have spoken about are the ones at Jackson street and Jefferson street, Dam No. 1 and Dam No. 2. The Haven dam was a third of a mile down further. Those other dams are the ones about which I have spoken.

Re-direct Examination.

I noticed there was a strong current that passed over these rapids and riffles; that is all I can say. A sternwheel steamer would be the smallest boat that could be used for commercial purposes, in my opinion, and I do not think it would be possible for one of those sternwheelers to get up that current in the river in high water. You could have got a flatboat
1640 up by doing what they call cordelling. Take a long rope up and hitch it to a tree and pull up on the rope. That would not be a commercial success. A man could not afford to do that for the money he could get. I have never heard of anybody trying to do that.

Re-cross Examination.

Cordelling is to take a long rope ahead and hitch it to a tree and then a lot of men on the boat pull on the rope. A rope ferry goes clear across the river and a pulley block hitched to it that they pull on. It has a pulley block that is put on the rope, and then there are two ropes, one here and one there, and a windlass in the middle, so they could turn that windlass and set the boat for one way, and when they want to put the boat the other way set it that way, and the curren shoves it right across. I have seen rope ferries where there was no windlass. This little windlass shortens one rope and lengthens the other. What they call cordelling is that they hitch one end of the rope to a boat and the other end to a tree up the river, and then move the boat by pulling the rope hard overhand. I have seen those sternwheel boats on the Mississippi, not on the upper Mississippi,
1643 though. I never saw them on the rapids above St. Paul; I have seen them down at Cairo. The boats I saw there got along all right; the current is not so strong there. I have seen these sternwheel boats on the Mississippi that stuck so that they could not get up through the river on ac-

count of the current. I saw that at Rock Island, saw them stuck there for half an hour; you could not hardly see them move, and they kept paddling away and they would go over the rapids; they finally got over it. Going down the river where there is a rapid current with a sternwheel boat,
1644 they could hold the boat back as well as they could push it through the heavy current. If there was power enough to push it through the current, then the same power would hold it from going down through the current, but that would not help it turn a corner. I do not think I could get one around. I was crossing Treat's Island a day or two ago and I happened to notice just below the bridge that there was a quick turn there and the water run pretty near straight across. I thought that was a place they could not handle a boat.

1645 *Re-re-direct Examination.*

I think just above Brandon's bridge there was a pretty bad turn. I do not think of anything else on this subject.

1646 JAMES C. KEEN, a witness for defendant, testified as follows:

Direct Examination.

My name is James C. Keen. I am living in Plainfield now, but I lived a great many years in this town. When I first came here I went there, came from Chicago to Plainfield. Plainfield is in Will County, ten miles from here, between here and Aurora. I was born in '24, came to Will County in '43. I lived west awhile in Nebraska, about seventeen years. Lived in Will County from '43 to '85, then went to Nebraska
1647 for seventeen years. I was in Washington near Spokane about a year, that was a couple or three years ago. With these exceptions, I have lived in Will County all the time. I came here with my parents. We came to Buffalo by canal, took the boat from there to Chicago, then came by wagon from Chicago to Plainfield. We didn't come down the Desplaines because we came the other way. We didn't know anything about any Desplaines river at that time. I first served my time at blacksmithing, then I went into gunmaking. I carried on gunmaking a good many years on Bluff street of this town. We came here in '43 and I went back east after being here a year and was gone two years and came back here in '46. I left there and came to Joliet in '50. From 1850 to about 1885 I have lived in Joliet.

I don't know as I am familiar with the Desplaines river.
I have been up and down it a good deal hunting and fish-
1648 ing; been up and down it in rowboats at different places,
not so very much above, but I have below. I have hunted more through Joliet Lake and down through there. Never was much below the foot of the lake. We went afoot hunting deer and such things as that. Sometimes the water would be pretty low in the river, especially where there were what we call rapids or riffles, but in the lake there was always water until we got to the foot of the lake and after that it would be just the same I suppose as it was above, that is Lake Joliet. The north end of that lake would be right here, just below the bridge that comes across the river, Brandon's bridge, and then the lower end of the lake would be
above Treat's Island. In that lake there were places
1649 that didn't know anything about any bottom at all down
all the way through.

The condition of the river as to depth of water would be that there would be times when there was plenty of water and then times there would not be so much. Most all the time it would be that there would be only a little water in the river over the rapids and riffles. Of course, there were times when there would be plenty of water, especially when we had our freshet. I don't know that I could tell how much of the time during the year there would be floods and freshets, some years more than others, generally speaking there would be places when you could not float a boat as large as a skiff. There would be times again when the water would be very high. There would be three months out of the year
when there would be quite a good deal of water in the
1650 stream. It would be in the summer that there would
be a small amount of water in the dry parts, but, of course, in the winter and fall and spring there would be water. During the seasons of the year when there were no freshets the condition of the river as to depth of water would be that there would not be very much water. I have seen it when you could walk across the river below where the old Malcolm dam used to be,—you could go across on stones. That was only in the driest parts of the season. It might be possible in the normal and usual condition of the water when there were no floods and no freshets to navigate rowboats up the river over these riffles and rapids I have spoken of. You would have to pick your channel to do that. You couldn't go any place in the river at that time. By going around you

could possibly come up. The rapids there opposite Davidson quarry you couldn't row up it at all, you might pull up.

I have pushed a skiff up and down from the upper end of Lake Joliet to the Town of Joliet, had a man with me to paddle the boat. That is at the head of the lake. There was enough water in the river to get the boat up over the riffles.

1651 We pulled it up, couldn't paddle it very well. I never went out when the river was not flooded, the water would be too rapid. It might have been possible to take a boat up the river during flood season, but I wouldn't want to try it. There was no trouble about going down the river in flood season. I have gone down during flood season over the riffles and rapids.

It might be dangerous, I never knew of any boat plying up and down the river for commercial purposes, never heard of any such boats being used or of any merchandise or produce being carried up the river on boats to Chicago. I never

1652 knew of any such boats being placed on the river.

I have been down the river to the foot of the lake. I have not gone down to the mouth of the river upon the river, but I have hunted down there a good deal. There was a dam in the river at the lower end of the lake at Treat's Island. I think it was stone that was hauled in there mostly, but whether it washed out or how it went out I couldn't tell.

When I came to Joliet in 1850, there was a dam above in the river and that stone dam up there and the one at Jefferson street. The stone dam I refer to is the one now known as Dam No. 1 where the Economy Light & Power Company

1653 is. There was a dam here at Jefferson street, too. I don't know whether there was any other dam in the river in 1850, or not. There was the Adams mill there, the old grist mill and sawmill, there was a dam there. Those dams stretched clear across the river. You couldn't take boats up because there were no locks to lock them through.

Just this side of Brandon's road there were riffles and right opposite the bridge in the river, just as you strike the head of the lake, there was a little riffle there. There were stones in the river there, different kinds, what they call boulders, and they were on this rapids down opposite this Davidson quarry.

1654 I have crossed the river a great many times at that point. I have waded across. There was a road across. They used to ford there. Didn't haul very heavy loads.

You couldn't haul very much of a load up the river there very well.

Prior to 1848, I couldn't tell you much about how the farmers got their grain to market because I was in Plainfield. We got produce and grain from Plainfield by wagon and team.

During the summer season when we waded across these fords the water would be up to our knees or over sometimes. I should not think it was possible in those days to navigate a boat for commercial purposes up and down that river. I think these were fences stretched across the river, but I am not positive.

1655 *Cross-Examination.*

These places where I say the water was up to my knees, where I waded across that was on the rapids. I know the road that went down to where the grade is built opposite Davidson quarry at the head of the lake. It was cut up, showing a good deal of travel.

1656 I was in the office of Mr. Stevens here in the city day before yesterday.

Q. Now, at that time, did you make this statement or this in substance. Did you say that you were now in your eighty-fourth year of age—?

A. I am.

Q. Wait a minute. I want to read a little statement to you to see if you said it and I will let you know when I have finished. Did you say you were now in your eighty-fourth year of age, and that you came to this country in 1843; that you resided in the county continuously since that except from 1885 to 1902 when you were in Nebraska; that you were always fond of hunting and fishing and indulged in these sports at all seasons of the year and for many years after coming to the county; that you have been well acquainted with the Desplaines river, having been up and down it many times; and that without the least difficulty, except in the very driest season of the year, there were at least six months of each year when boats of good size would come up and down said river from what was known as Haven's dam in Joliet to the mouth of the river, the only trouble being the swift water at times on the rapids at the foot of Lake Joliet; that

1657 you remember the old road leading from the canal near and opposite Davidson quarry to the head of said lake and that the same was deep rutted as though the same had

been drawn over it; that said road ended at the west bank of said river at the head of Lake Joliet; that there was a stone quarry on the east side of said lake near the head where good stone was obtained at an early date and which may have been hauled to said river and loaded upon boats there; that the bluff or bank up through said quarry and right east of it,—that no loads could be hauled up it in those days?

A. I didn't say no loads. The biggest part of that I didn't say at all.

Q. Wait a minute. What I want to ask you now is, did you say that or that in substance to Mr. Stevens day before yesterday, that being the 15th day of January, 1908, at his office in Joliet? Now answer.

A. Now are you ready?

Q. Yes.

A. I didn't say a good many of those things because I never knew anything about any road leading to the head of Lake Joliet. The head of the lake is some little ways below where the bridge is now, must be sixty or eighty rods, a quarter of a mile below the bridge. I never crossed any road except that road we used to ford there. There was an old wooden bridge at one time a great deal lower than the one is now and it was washed away, and it was built up higher, and put in a higher bridge. I said when you got on the east side of the river it would be almost impossible to haul much of a load before all those roads were fixed.

1658 *Re-direct Examination.*

Any kind of boats would not be able to go up and down the river from what is known as the old Haven dam to the mouth of the river; might have a flat boat and go up and down. Until we got this water from the lake the river got very low; since this water has come in there would be water enough to run in between the Haven dam and the mouth
1659 of the river. As to the current of the river I should say it would be very rapid. I have not been up and down any since the water came in; I do not know of anybody having run up and down.

1660 ENOS FIELD, a witness for defendant, testified as follows:

Direct Examination.

I live at 223 Gold street in Joliet; have lived here two years this last time; lived in Joliet before that, in 1871 to 1880. I came to the State of Illinois in 1847; landed at Ottawa. Between Ottawa and here I have been the balance of my life, except one year in Kansas. I was born in 1834. I came to Ottawa by boat. I was born on the other side of the Catskill Mountains in New York. In 1837 my father moved from there to Ohio. We canalled from Albany to Buffalo; from Buffalo came across the lake to Cleveland, and from Cleveland to Columbus. We went there in 1844 and went to Portsmouth, Ohio; from there we went down on the Ohio river to Cincinnati. I stayed there for three years and learned a trade and I started from there in the fall of
1661 1847 and came to Ottawa by boat, all excepting from Peru. We got off at Peru. They were teaming from La Salle through to Chicago anywhere you wanted to go. I did not come by Chicago to Ottawa. I have followed the I. & M. Canal from 1854 up to '81; was employed on the canal. After '81 I ran a saloon down in Wilmington 11 years; that is on the Kankakee river. Then I went to Morris and put in an electric light plant down there and ran that for eight years, and lived there without doing anything only fishing. During the time I was employed on the canal I was boating up and down, carrying grain. I ran two or three years from Seneca on what they called the Northern Transportation boats. They ran through from Chicago to St. Louis. Have been as far as Nashville, Tenn. Took boats down the canal from Chicago into the Illinois river and back up again.
1662 I was up the Cumberland river to Nashville in 1864. In those years I became familiar with the Desplaines river, no more than to see it as we went by; never traveled it. Since I quit boating I did not fish in this river; it was too muddy. I did not see it any more between '47 and '51 than to see fellows catching fish while I was going along. I had opportunity to observe the river between here and Brandon's bridge, going up and down. In 1849, the time they were going to California, there were five steamboats loaded at Ottawa. They fetched up a hogshead of sugar, coffee and such stuff, unloaded it there. There was one boat went to Marseilles. At that time there was a dam at Marseilles. They

could not go any further. There is no doubt in my mind there was water enough to boat then to the Kankakee.

1663 I do not know as there was any freight brought up to Chicago from Marseilles. There were teamsters running from Peru, which was considered the head of navigation, and in fact when I landed there we put our freight in a wagon and came up to Ottawa with it, and there were teams there to go wherever you wanted. Some of them would take passengers through to Chicago and some were going down. I could not say anything about whether it was a frequent thing to send merchandise from the Illinois river by means of teams prior to 1849. Grain that was raised there, we got up to Chicago either that way or sending it to Peru, going down to Utica. That was considered the head of navigation at that time. Boats used to come up from Utica and take wheat from there. I never heard of any produce or freight or grain coming up the Desplaines river to Chicago or from any point on the Desplaines river, or of any boats transporting merchandise or freight of any kind down the Desplaines to Chicago or from any point on the Desplaines. I will give a little history. Up here from Summit this is what I

1664 have seen. The river up there run both ways in high water. Old Ogden up there in Chicago dug a ditch; it was called the Ogden ditch. I suppose this drainage ditch has that from Bridgeport down, and he dug it into the Desplaines river. That brought the water from the Desplaines down, and the State made him put a dam in there because the high water would run it right out into the lake. It was for boats going. I never saw even a skiff in the Desplaines river. There was a dam where this trouble dam is, an old dam. I can give you a little history on that. That dam must have been put in in 1833. There was a man here by the name of Beard, two of them. They laid out a town there and the old man and his wife died the same day in 1847, but they have a nephew that is out in Michigan here; he was telling me about this. He told me, this nephew, that his uncles were offered $40,000 for their right in point in there, for the mill and all. I don't know what the mill was. There was nothing but a flume there when I commenced boating in 1854, but the old dam is there, part of it The appearance of that old dam was there in '54.

1665 (Motion by counsel for complainant to exclude the answer of the witness because it was manifestly hearsay.)

I got this pretty straight from a nephew; his mother was a sister; she died down in Morris 102 years old. They called the nephew Doc McKeon. I don't know where he lives in Michigan. He has got a son down in Morris married to Storey Madison's daughter. I guess I have seen the rapids in the river below Joliet, sometimes observed the stage of water in the river. We were always looking over there as we were down the canal, from there down to Brandon's bridge. Sometimes the turtles took the catfish over from one depot to another; it was terribly low; the Kankakee was
1666 bigger than this; I have seen the Kankakee you could cross it without getting your feet wet and have a pair of shoes on. Generally speaking, the result of my observation during all the years I was in this vicinity is that it has been very low. There used to be a guard lock here and they would open all the gates and go right through. There was not water enough to supply the canal. They have a feeder up at Sag bridge and a feeder down at Lemont from the Calumet river. It was not possible to navigate boats up and down the river at any time that I know of. I heard of a boat down here two or three years ago, three fellows going down fishing. They came down by Morris, floating. They were drowned down below here, in the lake; the boat was sunk or something. They found it sticking in the mud. There was one or two of them could swim good, but they never knew they were drowned until they were catched down at
1667 Morris. It was only a few years ago. The Drainage was in then. There was a dam down here in the river when I first came, one on Jefferson street and one up there, the old Haven dam, and one where the Economy Light & Power Company is now. I don't remember there being a dam at Treat's Island. I see a dam up at Lockport, this side of Lockport; Norton had it in there. I never paid any attention to it. I saw there was a dam there, that was all. Never had occasion to ford the river at all. I think I have seen a stake-and-rail fence up here between here and Lockport. It ran pretty nearly across the river.

Cross-Examination.

1668 Thirty inches of water would be required to navigate a boat say 10 feet wide by 30 feet long carrying say five tons of freight, with a flat bottom; if she is built out of oak will draw 30 inches of water, and when made of pine

will draw about 26 or 24. We calculated the carrying about a little over 100 bushels of corn to the inch. We drew 4 feet 8 inches of water. I don't know of any rule for calculating the carrying capacity of a boat. I do not know whether it is the rule or not that the capacity of a flat bottom boat drawing a foot and a half of water is 90 pounds to the square foot. We used to carry a little over 100 bushels to the
1669 inch. Our boats were 100 feet long by 17½ feet wide. The canal boats I operated were 100 feet long and 18
1670 feet wide on deck. They would carry 6,200 bushels. The boats would draw 4 feet 8 inches of water. I will take my oath they gave us 4 feet 8 inches of water in the canal. There was 4 feet 4 one time and one time they didn't measure it at all. That load would carry on 4 feet 8 inches of water on the sized boat I have mentioned.

1671 URIAS BOWERS, a witness for defendant, testified as follows:

My name is Urias Bowers; I live in Joliet. The last time I have lived here a little over a year. I have made Joliet my home ever since 1844, but I have been away occasionally a whole summer. First came to Will County in 1844, in May. I was born in 1833; was about 11 years old when I came; have lived here in Joliet except for the absences mentioned. Have followed the water for a living most of my lifetime. My business was mostly boating along the river and canal,
1672 along the I. & M. Canal and along the Illinois river. I have made a good many trips along the Illinois river from Chicago to St. Louis. I won't undertake to say how many, but for 40 years. I had charge of canal boats plying up and down the canal. The first boat I had charge of was in '69—'60 I think it was, spring of '60. Before that I was employed on the canal; I did a little on it in 1849. In '50 and '51 I was main hand on deck; after '60 had charge of a boat myself. I ran a boat a couple of years after the Chicago fire, I think about '73. Since '73 have run boats on the Illinois river; used to go from Chicago to St. Louis on canal boats; carry lumber and flour back. Since I left the canal in
1673 about '73 I tended lock eight years, Lock 10 and Lock 12 on the I. & M. Canal—both at Marseilles, two locks close together. After I quit tending lock I came up here and

went out on a little farm out of town here about two miles and a half. Have been there ever since until a year ago last fall. I am familiar with the Desplaines river as much as I am along the canal; it runs right along the canal pretty much all the way from Chicago to the head of the Illinois river; we could see it most all the way down. There are very few places you could not see the river from the canal from Chicago down to the head of the Illinois river. I never
1674 was fishing or hunting much along the river. I never made it my business to go along the canal to examine the water in the river. I have been along the shores at different places, on and off. Have fished in the Illinois river and some in the Desplaines river, and some in the Kankakee river, but not much in the Desplaines. From here down two or three miles as far as Treat's Island, my father used to do a good deal of fishing. I used to go with him when I was a boy.

Q. What was the condition of the river before 1848 as to the depth of water in general?

Objected to; witness does not know and has shown he had no opportunity of knowing.

A. I don't know what you mean about the condition of the river.

Q. As to the depth of the water in it?

A. I could tell you more about the quantity of water that went over these dams than about the condition of the river as to depth of water in general before 1848. I have seen the water over this Jefferson street dam here when it varied from an inch to two feet in a season. I have seen two feet of water on that dam and I have seen it when the water did not run over it at all. As far as I have had any ex-
1675 perience we always had less water in the summer time. We would have a freshet in the spring. Dry seasons we had scarcity of water most all the time on the canal. We used to have factories in Joliet that got their water out of the canal. When the water got scarce they used to shut down. I remember lots of times it used to be a rule that when these mills run until the water quit running over the dams, then they were shut down. There was no water to spare for them only what the canal wanted to use to keep its regular stage of water. I remember the Jefferson street dam down here when I first came, in 1844. I remember that the dam built before the present Jefferson street dam ran cater-cornered across the channel from northeast to southwest. I never saw the

dam because it was always covered with water, but I have seen the shape of it when they dug out the Drainage
1676 Channel. I have been aground on the dam with a canal boat. When I first came here there was no dam where Dam No. 1, the present Economy Light & Power Company's dam is. They commenced building that in '45 or '46 I think. I was employed on the construction of that dam; carried grub around for the boys. I was what they called "grub boy." There was a dam below here called Malcolm's or Haven's dam when I first came, in 1844; that is quite a little ways this side of McDonough street; that dam was clear across the river; so was the Jefferson street dam. No boat could go up either one of these dams. There was no lock in the old Adams dam. There was a space over on the
1677 west side of that dam that was probably 12 feet wide, built out of stone, where they planked up in there to keep the water from running through, probably put there to put a wheel some day. No boats could get over these dams up stream. They might have gone down in high water over the dam. I never saw anything of that kind. I never knew of any boats navigating the Desplaines river, carrying freight and merchandise or passengers from Joliet down to its mouth; never heard of any; never knew of anything
1678 more than a skiff or something like that navigating the part of the Desplaines river above the point where the canal comes in. Never heard or knew of any boats on the Desplaines river used for commercial purposes. When I first came to Will County in 1844, both freight and passenger traffic was conducted by teams; carried passengers with teams and hauled out stone from here to Chicago by wagon. Farmers would take their grain to Chicago by teams. My father made it a business of teaming between here and Chicago. I have seen as high as a hundred teams between Lockport and Chicago, along about 1845 and '46. I used to go with my father with a team. We used to mostly haul merchandise from Chicago here, and passengers. Father used to carry passengers from here to Chicago for a dollar; start from here in the morning and guarantee them to get to Chicago so as to get an evening boat to go out on the lake; if he didn't get them there he didn't charge them. Father came from Ohio here by team. Some places I had occasion to observe the rapids and ripples in the Desplaines river. We used to ford the river down at the Kankakee where father lived, just below the aqueduct, down where Beard's dam was. His

farm was on the west side of the river, down near
1680 Beard's dam. That was not when I first came to this part of the country. Father lived here over 20 years before he went down there. There was a place there that we always called Beard's dam, the boys that were younger than I; I have been there with them fishing. They would say, "Let's go down to the dam." There was part of the old timbers sticking out of the water. There was no remnant of an old mill that I ever saw. I do not know when I was first down there where Beard's dam was; I could not tell. I commenced boating down there along in the '60s.

Q. Did you ever hear that there was at one time a dam clear across the river known as Beard's dam, and also a mill there?

Objected to by counsel for complainant.

A. Well, I have heard that but I never saw the mill.

Q. And the evidence down there showed you when you were there that there had been a dam there at one time?

Objection by counsel for complainant to the question as leading and suggestive.

A. Oh, yes, there had been a dam there; I did not hear when that was first constructed.

Q. Now, from your experience along the Desplaines river was it ever possible to navigate up and down that river for purposes of commerce?

Objection by counsel for complainant.

A. No, I don't think it was; I know it was not. You might take a boat down but I do not see how it would ever be possible to get it up.

Q. You couldn't take a very large boat, could you?

Objection by counsel for complainant to the question as leading and suggestive.

A. Well, I don't know; there has been water enough to carry a pretty good sized boat, but then that was only just in freshets in the spring time.

The WITNESS. I should think it would be dangerous to take a boat down, a boat that had any kind of freight on it that was damageable.

Q. You never heard of its being done?

Objected to as leading.

A. Never saw a boat that carried anything up and down the river, anything that was carried for any purposes, as

grain and lumber. I have seen small boats go down the
1682 river, fishing and hunting and trapping and such things;
but they seldom came up. I remember once myself and two fellows took a skiff and went down the canal from here to Channahon. There we put it into the Du Page river and went down into the Desplaines as far as the aqueduct. Then we pulled her out and went over to Goose Lake, hunting.

Q. Did you have to drag the skiff over the rapids going down?

Objected to as leading.

A. Yes, sir.

I only remember one place, that was right after we got her out of the canal; close to where the Du Page enters into the Desplaines, there was quite a rapids there, about a quarter of a mile below Channahon. We put the skiff back into the
canal; could not have got it back up the river because
1683 there was a good many rapids along the river, and we
knew them, and rather than pull her over the rapids we might as well walk back, because we would have to walk back over half the way anyway. So we put her into the canal and came back that way. I never that I know of saw any fences across the Desplaines river. I have seen them fence into the water 10 or 12 feet to keep cattle from going from one man's land to the other where they had pasture, but don't remember seeing and fences stretched clear across. It was along about 1858 or '9 that I was in the skiff with the two other people, fishing, and took the boat back by way of the canal.

1684 OLIVER S. CHAMBERLIN, called as a witness on behalf of the defendant, testified as follows:

My name is Oliver S. Chamberlin.

I live at 1112 Cass street on the bank of Spring street here in Joliet. I have lived here about 12 years. I lived in Will County 7 years at the 12-mile Grove, and then I lived in Cook County 7 years at Blue Island and I lived 18 years up on the farm and about 12 years here. The farm where I lived 18 years was about 5 miles and a half east on Maple
street in Will County. I first came to this part of the
1685 country in the fall of 1837, and have lived at these various places ever since. I have not been away from this

general country here. I was born in 1825. I did not come by the way of Chicago; we came around the lakes. I was about 12 years old when I arrived here; it was 1837 when I first came to Will County. I did not become so very familiar with the Desplaines river in the years between 1837 and 1848. I remember seeing how it looked down here below the town, and up beside the Sanger farm towards Lockport. I had some horses on the Sanger farm, and I used to notice
1686 the river along there.

As to the usual depth of water along there, at the southern part of the Sanger farm, it was not deep. It ran pretty lively and a little deeper on up. I do not know that I ever went into it with a skiff, or measured it for anything. The Sanger farm is up above Joliet some distance; I guess about three miles. I had in those years, occasion to observe the river down below the Town of Joliet. I can remember coming down to the Davidson quarry, and I could look off into the river where it was pretty wide and pretty shallow. I did not have occasion to see the river very frequently during the different seasons of the year, at those points. I could not point out where the rapids were in the river so very particularly. I have been along the river a little sometimes when I was going to Channahon. I never tried to go down the river in a boat. I guess I have seen skiffs on
1686 the river; I have not seen them very frequently. Whether or not skiffs were used much on the river, when I first came down here, I do not know much about it. I did not stay but a few days in town. Then we went up to the 12-mile Grove, and then I didn't get here very often; only in the winter, I came down and went to school.

1687 I don't know how the farmers got their grain to market between 1837 and 1844. I guess they must have drawn it up. About 1846, I guess, I know I was down to visit my brother-in-law that lived at the club-house; that is a little east of this old stone schoolhouse. He said he wished he had a load of grain hauled up to Chicago, and I said that I would take it for him. I took it by Blue Island, with a team. I suppose that people who traveled between Chicago and Joliet, and that merchandise and freight, were carried by means of teams. I am satisfied as well as I can be that they did. I never heard of any boats bringing merchandise or produce, or freight of any kind, down the river from Joliet until the canal boats commenced to operate. I never heard

of any boats being navigated upon the Desplaines
1688 river at any time for the purpose of commerce. I never heard of it at any place on the river. I never saw any such thing. I do not recollect of having seen any fences built across the river.

No cross-examination.

SENECA HAMMOND, called as a witness on behalf of defendant, testified as follows:

Direct Examination.

My name is Seneca Hammond.

I live in Joliet. I came here in 1849, by way of Chicago. I came from Chicago to Joliet on a canal boat. I was born in 1837, and have lived here in Joliet and vicinity ever since 1849. My business has always been a farmer, up
1690 to within a few years. My farm was right east of Joliet on Maple street (road we call it) about 4 miles; that would be 4 miles from the river. I had occasion to transport farm produce or grain to the Chicago market. It was always done by boat on the canal. After I arrived here, the Desplaines river was always our fishing ground. I always went there fishing; that was all the sport we had those days—fishing; I went once or twice a year; we used to fish down below Joliet here where the Hickory creek empties into the river; we used to fish there, and also from Joliet up to Lockport and through there. I never was down the river below Hickory creek, above Lockport. We used to go near
1691 Romeo. I have only been along the Desplaines river below Hickory creek by wagon road. I have not seen the river much below Hickory creek. It was our custom to go fishing about May. We calculated to go when it was not very high. We had to fish with a seine; do wading; we generally found where we always waded. I went where I could find holes in the river and seined for fish in these holes. I never had a boat which we drove down to the bank with a wagon, and then waded out into the stream and used
1692 our seine. I never saw skiffs or boats going up or down the river at any time. I, myself, never used a boat on the river. I never heard of any other kind of a boat going up or down the river, nor did I ever see any. I never heard

of any boats used for commercial purposes going up or down the river at any time in my life.

Q. From your observation of the river at the points where you have fished it, what do you say as to whether it would be possible, or whether it would have been possible to navigate the river by any kind of boats?

Objected to on the ground that the witness has disqualified himself from answering the question.

A. Well, as far as I know, I do not think they could. I saw the river at these points where I was fishing.

1693 Q. Were there points in the river that even a skiff would have to be dragged over rapids and riffles?

Objected to, as leading and suggestive.

A. Yes, sir.

Q. Would it have been possible, in your judgment, to have taken skiffs up or down the river, over the rapids that you observed, when you were fishing there in the early days?

Objected to on the ground that the witness has not said that he has seen any rapids.

A. Why, it would be possible, yes, sir.

But not without dragging it. You would have to drag it over riffles, in my experience. I have seen the river in times of high water. It would have been possible to have navigated boats up or down during these times over the rapids I observed in the river, but I should hate to have been in it. I think it would have been dangerous to go down the rapids. The current would be very swift. I do not think it would

1694 be possible to have rowed a boat up those rapids in high water; the current was too swift. I don't think it would have been possible to have taken boats used for commercial purposes either up or down the river during the times of high water. I never heard of it being done. In the early days I didn't observe that any fence was built across the river. I saw one up here at the penitentiary when the penitentiary was built there. It was a wire fence. The parties that owned the land on the other side, built the fence there. I saw that fence about 1863 or '64, somewhere along there. That fence was a mile or two north up the river from Joliet, right beside the upper lake. I saw the fence there more than once. I climbed over there a good many times. That fence remained there within my knowledge 3 or 4 years. I don't know whether it was ever removed or not. I could not say. I don't know whether it has ever been taken away or not.

1695 *Cross-Examination.*

I have rowed a skiff on the river from the lock down as far as Joliet; I mean the twin locks up there. They must be nearly a mile up the river from Joliet. I rowed a skiff down only once; I was hunting ducks in there. The little experience that I have had does not enable me to know very much about what can be done with a skiff on a river. I
1696 do not pretend to have very much knowledge about what can be done with a skiff. I did not say that I helped drag a skiff over the rapids. If a skiff were taken over certain rapids that I saw, it would have to be dragged over.

1697 PETER O'BRIEN, a witness on behalf of defendant, testified as follows:

Direct Examination.

My name is Peter O'Brien. I was 75 years old the 29th day of last June. I lived at 806 Northeastern avenue. I have lived in the city or vicinity of Joliet and Desplaines river fifty-three or fifty-four years. When I first came here I was steward and porter on these packets that ran from Chicago to La Salle. I raised a company here as 2nd lieutenant
1698 and went to the war and resigned. I was nine months in and resigned. After that I fished and hunted, trapped and so on. My business to-day is just trapping. I ain't trapping now, but I am waiting for the weather to get so I can trap. I trap every winter and fall; 7 miles south here; Lake Schweitzer, that is on the Desplaines river. My trapping and hunting and fishing has generally been confined to a territory along the Desplaines river and adjacent to it. I have seen the Desplaines river in all seasons of the year. It has been very low. I have waded along from Malcolm's mill way down to Brandon's bridge, and below that 40 or
1699 50 rods. In that territory from Malcolm's mill to Brandon's bridge, I should say there was from 6 to 8 feet of a fall. Quite a current from Malcolm's down to—way down to where we call the lake; that is, the head of Lake Joliet; that is in the neighborhood of three or four miles from the courthouse. I have never seen any freight boats plying up and down the Desplaines river, excepting a canoe or a skiff taking provisions down to camp for a week or so;

never heard of a freight boat going up or down the Desplaines river carrying merchandise. As to whether it is possible for a row boat to come up the Desplaines river in any season of the year, from the mouth of the river to Malcolm's mill, sometimes you would have a good deal of poling and avoiding these big, hard heads to get up when there was any
1700 kind of a current. They poled up small boats from the mouth of the Desplaines river to Malcolm mill. They poled up and worked with the oars. I don't know whether they were able to get their boat up through the rapids, without getting out of the boat, or not. I myself, even, had to get out to come around the edge of the abutments, before Brandon's bridge was built, in order to get up that heavy current. I would take my boat down to where the current was not as swift, and give her a good shove, so I could go around the piers; around the abutments. I might pull my boat out of the water, once in a while. I never rowed or poled a boat from Brandon's bridge to Malcolm mill. I could not, because there is not water enough and when there was water enough, I could not get up against that current.
1701 If a boat were going down the Desplaines river in times of high water, it would be likely to strike one of these hard heads. All you can see of them when it is high water is a kind of a little riffle or current around them. I often went down the Desplaines river in times of high water from Malcolm mill. I went in a small boat, but I would go down backwards, so as to avoid those hard heads. I would sit right where I rowed from and turn my boat around, turning the bow downwards—backwards, and row backwards. I would not row, I would let her go down with the current and avoid those stones.

I have seen fences across the Desplaines river. Mr. Adler had a fence there, down below Malcolm's, so the cattle would not get in the opposite place of Mr. Davidson, the old fellow who owns the quarry. The fence went clear across the river. I don't remember whether there was more
1702 than one of them. I saw it pretty often. A freshet would generally take it out, once in a while. It would start in at Hickory creek, where Adler's pasture used to be, and then cross over so it would not strike Davidson's place. They would get in any way, once in a while, and they would have to drive them out. There was a wire fence along the shore, from about south of Hickory, down, you might say, maybe 80 or 100 rods. I am pretty certain of that.

1703 As to the dams on the Desplaines river I remember Malcolm's dam and then the Jefferson street dam and then Number 1 at Jackson street, where the present dam is now.

I knew of a dam at Treat's Island. I used to go out 1704 and wade out to where—a little above this dam. There used to be an old—kind of big logs and so on across this place; a little kind of east of Treat's Island, and I think it was for the purpose of getting water into the mill that they had a sawmill down at the lower end of this little runway; I think that was what it was for. There used to be a dam, an old dam, in the vicinity of the mouth of the Desplaines river, a good deal like the dam that was there at Treat's Island. That dam was clear across the river.

Cross-Examination.

The trapping that I did was done in the winter and fall,—the fall and spring. The reason I could not take my row boat up the river was because of the swift current. At 1705 any time when I waded in the river, it was in warm weather, in the summer time; that was the season of the year when the river was lowest. I should say it was all of a quarter of a mile over from the dam here in Joliet, at Jackson street, to Malcolm's mill. There were rapids in the river below Malcolm's dam, but not above the dam. I don't think where I waded, I could drown very easily. In some place it was 5 or 6 inches deep and in more places it was maybe two or three feet. The dam that I spoke of at Treat's Island I think was put in to have some of the water pass by the sawmill that was there.

1706 There are three channels. There is one on the west side of Treat's Island, and then there is one betwixt the main island, large island, that the race-way goes down to the mill, and then the biggest is on the east side. This portion of the river where the dam was, was not very narrow. There was quite a stream on the east side of it. It might have been as wide as a good sized road; it might have been 5 or 6 rods wide. The size of the stream on the other side of the island was about the same. Mr. Adler had a fence across through it, one time; it was just a wire or two wires stretched across; there might have been only two or three wires for that matter. I didn't pay much attention to it, but I know there was a wire there, and that it broke when there was a freshet

in the spring of the year; it would generally break it. The purpose of this fence was to keep cattle from going over to Mr. Davidson's. I think that was what the point was. Davidson used to have a big lot of quarry stone put on end for a fence in one part of his field. This fencing was to keep cattle from going from one man's field around to another. I only remember the one fence that was across the river.

1708 FRANKLIN COLLINS, a witness on behalf of defendant, testified as follows:

Direct Examination.

My name is Franklin Collins. I live at 201 Baker avenue, Joliet. I came to Will County with my parents in the fall of 1833. I was about three years and a half old. My first knowledge of the Desplaines river was in 1837 or '38. The dam at Lockport pertaining to the Daggett mill was either in process of construction or constructed at that time. There was a dam across the river down here a little above the
1709 old Jefferson street bridge. I think it extended across the river. I suppose there was a grist mill in connection with that dam. I never was in the building; that is the dam known as the McKee dam. As to whether or not there were any other dams in the river prior to 1848, I could not swear as to the date that the Havens boys put in a dam below there for the purpose of a sawmill. I never saw boats carrying freight or merchandise plying up and down the Desplaines river, nor did I ever hear from anyone whom I regarded as a reliable source of information, that boats carrying freight and merchandise plyed up and down the Desplaines river.

There were some places in the river where it was easily forded at almost any time, and then there were other places where you could drive right across the river. I never
1710 forded the river at all, later years. I think the first time was about 1840, '41 or '42. At that time I forded it at Lockport. I don't think I ever forded it at any other place, before the opening of the Illinois and Michigan Canal. The ordinary condition of the river as to quantity and depth of water was very little in quantity; in depth, it varied very much, from nothing to, maybe in places, two feet, perhaps.

There would be a series of holes and shallows clear across the river; also up and down the river. I have seen row boats going up and down the river for short distances. There were places where a row boat could run a few rods, and in some place I should say half a mile. When they got to the limit of row boat flotation, if they wanted to continue, they would have to carry the boat over—make a portage. There were not many row boats on the river; they were owned for purposes of pleasure. I never heard of a boat being owned on the Desplaines river for the purpose of commerce. When we came here, we came by wagon from Rochester, N. Y. We came around through Indiana. We crossed the river at Detroit, and the rest of the way through Indiana and those adjacent states that we had to touch. I frequently had occasion to go to Chicago before the opening of the Illinois
1712 and Michigan Canal. At first we used to use ox teams, and soon branched off into horse teams. There was no other way of getting produce to Chicago and getting supplies from Chicago, excepting teams at that time. There were teams in the summer, when the roads were very good; later in the fall and early in the spring, they were very bad. It was almost impossible to get through with a reasonable sized load. Before the opening of the canal, there would usually be a good many teams going to and from Chicago. There was a stage line running from Chicago down through this country; it was called Frink & Walker. I don't know its real southern terminus; it ran from Chicago south and southwest.

1713 There have been fences across the river north of here; south of here I am not well posted. Those fences north of here extended clear across the river. They used to have a swing-gate, or what they called a swing-gate in some places; they were not all alike. I don't know whether or not the Daggett dam extended clear across the river.

Q. In view of the difficulties of transporting merchandise and supplies to and from Chicago, if it had been possible to have used the Desplaines river, would it have been used, in your opinion?

Objected to, as leading and improper.

A. Most emphatically.

In my opinion the only reason the Desplaines river was not used, was because it was not capable of being used.

Cross-Examination.

1714 I will be 78 years old the 19th day of April. I came to this country in 1833, as a child, with my parents. When I first came to Will County, we lived in what is now called the Town of Homan. We lived there most of the time until 1870. I live 5 miles from the Desplaines river, at a place that is northeast of the City of Joliet; I would call it a distance of about 9 miles. We call the distance to Chicago 32 miles; that is, the shortest and most direct road. If there had been boats on the river, I would not have seen them,
1715 but I should have known of them by hearsay. It is possible that there might have been some boats on the river, without my having heard of it; there might have been hundreds of them, without my knowing it. The dam at Lockport was built at an early day; I think before 1840. If it was built in 1837, I was then 7 years old. Our home at that time was about 5 miles from Lockport. This dam known as the McKee dam was situated at about Jefferson street;
1716 it was in what is now known as the City of Joliet. I think there was a mill in connection with it, as it is spoken of freely as the McKee mill; I have never been to it. Prior to 1848 I do not pretend to have exact memory as to month or year. The canal was built and finished about 1848; after that, water transportation was on the canal. I would say that since about 1840. I have an accurate memory
1717 at this time of the situation; that would be from the time I was about 10 years old. I think I moved to Joliet in about 1871. I think it was prior to 1840 that I forded the river at Lockport; I think it was in 1841 or '42 somewhere; I could not tell very positively. I would not pretend to be accurate as to three or four years of a time there when it might have been. I forbid it in company with my father, with a team of horses. I think in the deepest place it was about two feet deep. I think I have a clear and distinct recollection to-day as to how deep it was. I think there was a regular drag across; it might have been a riffle; I could not say as to that. The place selected for fording would most likely be in the shallow parts of the river; I don't remember whether it was or not; generally the fords of the river were on the riffles. During the next 8 or 10 years I usually
1719 crossed the river two or three times a year; that would be in the summer time at the low stages of the water. In extreme high water, this river got to be half or three-

quarters of a mile wide in many places; I don't remember how deep it was at those times. There were no measurements and no means of ascertaining. As far as any fence was concerned south of what is now Joliet, I don't know about that until later years. There are no fences across the river south
of Joliet, that I know of now. I would not swear that
1720 there ever was a fence across the river south of Joliet. North of Lockport there used to be several fences across the river. Mr. Fitzpatrick had one; that fence went clear across the river; it consisted mostly of boards; sometimes they had a swinging fence, one that they could take out as they saw fit; the majority of them were fixed that way; I would not swear that all of them were so fixed. All fences at that time were built most any way, with almost any kind of material that they had, but usually those were boards; also
there was wire. The earliest wire fence that I recollect
1721 about, is 1845. Until long after 1845, as a general thing
there was no wire to be used for fence or otherwise. Whatever was of wire at an earlier date, was made by a home blacksmith, or something of that kind, and strung across the stream. Rods were stretched across, and swung on what was a swinging gate; they were usually small rods, almost approaching wire. I remember distinctly of such rods as that being used in fences. I would not swear it was used there, but I will swear it was used north of there on Spring creek—across Spring creek. These rods or wires varied in
length; I should say they were from about 15 feet to 2
1722 rods. In setting them across the river, posts were set
in the river; they were mostly of wood; a few of iron. I do not know where they got that material to make those fences. I may be slightly mistaken in the date as to any wire or iron fence being put up as early as 1845, but I don't think I am very far off.

1723 JOHN McCOWAN, a witness on behalf of defendant, testified as follows:

Direct Examination.

My name is John McCowan. I live in Joliet. I was born in 1826. I first came to Will County before Will County had been made. I first came to this territory adjoining the

Desplaines river on the 28th of May, 1835; I was 8 years old in December, 1834; I came from Columbia County, State of New York. We came by wagon to Albany and got on a canal boat at Albany and came the whole length of the Erie Canal to Buffalo; then we got on a steamer at Buffalo and took that to Detroit; from Detroit to Chicago, we came on a
1724 2-masted schooner called the "John Jacob Astor." From Chicago, father hired a man, and he had to get an assistant to help him—another team. It took us one whole day to get the first 9 miles, because of mud and water. There were no roads at all in those days, from Chicago out. We had to unload and carry it to where they could set it down without being in water, and drive up and then load it
1725 over. We started from Winterberry's Point a little after sunrise on the 26th day of May, and got to Joliet at sundown.

Q. Describe the difficulties, if any, in coming from Winterberry's Point to Joliet?

Objected to.

A. It was a wet season of the year, and there was a great deal of mud; we did not have to again unload our goods; we took them all on one wagon from there. We were heading for Channahon, but we did not know anything about what there was down there, so we came to Joliet and
1726 laid over two days. From there we went down to Channahon. We went down about a mile from the southwest end of what is called the Wide Water. I refer to the Wide Water on the Illinois and Michigan Canal. There was nothing but a big slough then, because the canal was not built until 1848. From 1835 I lived in the vicinity of our location at Channahon for 39 years. On a direct line, we were a little over 3 miles from the Desplaines river. Old Mr. Isaiah Treat had a little grist mill and as soon as we got corn ripe enough and then dried it enough, we gathered it and dried it out around the stove pipe and shelled it and took it over to that mill. I personally went with the corn to the mill. The first time I went was in 1835; that mill was in operation at that date. I waited until the corn was ground into meal and took it back with me. There were two dams, one standing across each branch of the river. He had one run of stone in the mill. It did not take a great while to grind our corn. I never took only 4 or 5 bushels at a time because it was then green, that year's growth, and of course would not keep very

long. I lived on the right side of the Desplaines river,
1728 going down the stream. I got to the mill by going across
both branches, because the mill was on the east side of
the east branch. I had occasion to cross the Desplaines at
other points and other times before 1848. I crossed at the
foot of Treat's Island, and I crossed down, over near where
the Smith bridge is at the present time. The bridge is not
exactly on the old ford, but it is very close to it. I have
crossed the river here in Joliet at just below what used to be
the island. It would be about half way between Exchange
street and McDonough; that was where the ford was in the
early days. There was a dam in the river at Joliet in
1729 1836. I don't remember whether there was in 1835 or
not, in 1836 McKee had a dam and a grist-mill. One
thing that fixes that date in my mind is that father took some
wheat there of the growth of 1836, and he had some trouble
in getting his pay. I didn't go with him to the mill but I had
been past it several times between 1835 and 1836. Don't
know whether that dam was in in 1835 or not; that dam ex-
tended clear across the river; there was only one branch here.
I don't remember of a dam being located below what is known
as the aqueduct near the mouth of the Desplaines river,
1730 near a place called Beardstown in the early days. I
remember the locks were constructed in Channahon. The
stone with which those locks were constructed first came from
what was called afterwards the Alexander quarry; that is on
the east side of the river, or the left-hand side going down
stream. They got the stone from Alexander's quarry across
the river on stone trucks hauled by horses. The locks were
constructed in 1846 and 1847. I remember the construction
of what was known as the aqueduct. I could not say whether
they got the stones from which that was constructed at
Beardstown, or whether they got them at Alexander's. They
had quarries down there at what is called Beardstown;
1731 that was just before the conjunction of the Desplaines
and Kankakee but I don't know that there was anything
there except standstone quarries, that is to get stone heavy
enough for aqueduct purposes.

I have never seen boats plying up or down the Desplaines river carrying merchandise or passengers. I never heard of any such thing; there were trappers' boats, skiffs—little boats and skiffs. I never went up or down the Desplaines river in a skiff. I have seen trappers with skiffs. I have seen them all the way from the Davidson quarries clear to

Treat's Island, and I have seen them as far down—but there did not many of them go beyond Treat's Island—but I seen a few down as far as the Smith's bridge. Part of the stretch
1732 of river from the Davidson Quarry to the head of Treat's Island is known as Lake Joliet. I have not seen a skiff go all the way up the river from the head of Lake Joliet to Davidon's quarry; I have seen them at different places. The current in that stretch of river was pretty swift; the first two miles and a half was pretty swift; a good deal of a fall. A row boat could be rowed up that current, but it would not be much fun. I never saw one rowed up there, and I never rowed one myself.

The first time I was in Chicago after 1835 was in the fall of 1842, and then from that until the opening of the canal we were there every year, in the fall of the year, with produce, wheat principally. We got to Chicago with a team.
1733 We passed a good many other people on the road going to and from Chicago. That was the only way of getting produce from this territory, and below here, to Chicago that I ever knew, and I have lived within three miles of the Desplaines river since 1835 and up to the present date. I don't think it would be possible for boats to have gone up or down the Desplaines river since 1835 and up to the present date.

Q. Would it have been possible for boats to have gone up or down the Desplaines river carrying merchandise without your knowing it?

Objected to.

A. I don't think so, because I think it would have been such a memorable thing that it would have been talked about.

Q. In those early days, when travel by team to and from Chicago was so difficult, would the Desplaines river have been used, in your opinion if it could have been used?

Objected to.

A. It could not be used for transportation, that is unless it was in high water flood, or in the spring. If they had steam powerful enough to counteract the current, I guess they could have used it in high water, providing the boats did not draw too much water.

1734 Q. Did you ever hear of anybody owning a boat on the Desplaines river for the purpose of carrying merchandise or freight up or down?

Objected to.

A. No, sir.

Q. When you came to Chicago, did you inquire as to the methods and means that could be—that were available for getting into this country?

Objected to as suggestive and leading.

A. My father did. I didn't.

Q. Did you adopt the only available means there was of getting into this country?

Objected to.

A. There was no other available means of getting into this country at that time. I remember the Haven Dam in Joliet, sometimes called the Malcolm Mill. I could not tell exactly when that was constructed.

1735 I have walked across the Desplaines river down there at Treat's Island. Where I went across there was none of it over 16 inches deep, and some parts of it were not more than 6. Nigger heads and boulders were pretty numerous in the channel near Treat's Island.

Q. Was it possible to step from stone to stone across the river?

Objected to as leading.

A. I have walked that way.

Q. Went over dry shod on the stones.

Same objection.

A. Yes, sir.

I have seen a few fences clear across the Desplaines river.

1736 *Cross-Examination.*

I was born in 1826. I came here with my father in the spring of 1835. My birthday is in the month of December. I guess I must have been eight years and a half old when I came here. I learned a good deal about means of travel from the time I started until I got here. Of course I didn't know anything about travel until I started. I knew nothing about this country through here and from Chicago until I came. I didn't make any inquiry and look about to find the best means of getting down from Chicago, but I heard my father talking. I know that I came from Chicago here with teams, and I know that for the first 9 miles after getting out of Chicago, the roads were very muddy. There was not much Chicago there at that time. We started from what was called the "Old Green Tree" house, across from the "Indian Agency's" house. John H. Kinzie was the Indian agent there at that

time. I don't know anything about a "Mud Lake" near the City of Chicago; I never heard of it. I haven't heard of boats crossing between Chicago river and the head waters of the Desplaines in high water time. I have heard that the waters connect in high water time; that is, the waters of the Chicago river and the Desplaines river. I could not say when I first learned about it; it was previous to '48, but I could not locate the year that was, as I understood, at the time during a great flow of ice that caused the waters to dam up in the Desplaines. I didn't learn where the ice was located, but I read that in the newspapers. I just know, in a general way, the fact that in very high water there was water connection between the Chicago river and the Desplaines river, and that in low-water that connection didn't exist.

I never heard of the name "The Portage." The first year
1739 I went to Chicago, after I came here, I think was in 1842; I went with a team, with my father. I took some grain up; we had two teams; I drove one and he the other. I made no personal inquiry myself as to how I could get down here from Chicago, but I was always with my father when he was talking with the teamsters and others, and I heard all he said pro and con. He was talking to different ones—to the hotel-keeper and others. He talked with the hotel-keeper first, because he had to get the address of the teamster from the hotel-keeper. He inquired where he could find some teams or teamsters to bring him down, and the hotel-keeper directed him to one certain man having teams; then my father went to this man and engaged him to bring him down with his team, and I heard that talk. My father's inquiry at the time as to how he could get down here was all that I heard.

1740 Nine miles out from where we started in Chicago it was very wet and muddy and the water was on the prairie there were no roads at all. Concerning the depth of the water that we drove through, as the saying is, the tires and felloes of the wagon were very wet; it was all the way from two or three inches, up to two feet, in places. I cannot say how far up the Desplaines river went; I don't know today how far up it goes toward Chicago, but I know the Desplaines river and the south branch of the Chicago river come
1741 together in high water. Of course we must have been between the south branch of the Chicago river and the Desplaines. The condition that I have described existed all

the way across that stretch of 7 or 8 or 9 miles that I traveled the first time. I forded the Desplaines river down near the location of what is called the Smith's bridge. It must be 10 miles below Joliet; that is, below Lake Joliet. That bridge would be in the neighborhood of 3 miles below the lower end of what is called Lake Joliet it might be more and might be less; it is right in Channahon. Where I crossed there was a pretty swift current, but I would not say there was much riffles there. The rapids were further up stream; it was at a place where the water was running quite rapidly. It must have been a shallow part where this ford was, because we went through there with wagons very often. It would not more than cover front hubs. I don't know the difference between deep and shallow in that line. If you get water 6 feet deep, you cannot ford it. I forded there at all times of the year when there was not a flood. I hauled three hundred loads of stone from the Alexander quarry. I took the stone home, the greater part of it. From the Village of Channahon, it was just about one mile and a half to the Alexander quarry. The quarry was right in the bank of the river, that is, as soon as you went across the flat, about 30 rods, I should judge it was, there the quarry was there in the hill. This
1744 ford where I crossed with my loads was about 30 rods, as nearly as I can tell, below the Alexander quarry. The water at that ford was a little more sometimes than enough to cover the front hubs of the wagon; the lowest would be probably just over the front hubs. From the Alexander quarry, Treat's Island is up the river; I should think it was about a mile and a half from the quarry to the lower part of the island. I have seen skiffs on the river all along from Joliet to Channahon, going both ways. Part of the way the current was so rapid that it was hard to get a skiff along, especially on the rapids, and there was quite a number of them. A good deal of the way from Joliet to Channahon is rapids. I know where Davidson's quarry was; that was about a mile and a half above the head of Lake Joliet. Davidson's is not right across the canal from the head of Lake Joliet.

Re-direct Examination.

Those skiffs that I have seen on the river were used for the men to trap and fish. Away back in the early 40's and

late 30's, most everybody had a skiff that lived anywhere near the river; they were for the purpose of recreation and trapping and fishing. When I first came to Chicago, the name of the hotel I went to was the "Green Tree House." I was with my father when he made inquiries as to how to get into this territory.

Q. And do you remember whether he discussed with the hotel-keeper where he intended to go?

Objected to as not being fair re-direct examination.

A. He told him he calculated to go some place below Joliet, but he didn't know just exactly where. The hotel-keeper had no map that showed the location of the territory, that I know of. I didn't see it, anyway.

Q. Is that the question he asked the hotel-keeper, "How can I get to Joliet?"

Objected to as not being re-direct examination, and suggestive.

A. Yes.

Q. What did the hotel-keeper say?

Objected to.

A. The hotel-keeper told him he would have to get a team and team through.

Q. Then did your father ask where he could get a team and was he directed to a man who did teaming business?

Objected to.

A. Yes, sir.

1747 Q. At that time I suppose there were men in Chicago who made it a regular business of taking people into this country?

Objected to.

A. Yes, sir; because they took us, and I suppose that it was the same way with everybody. Of course there were the teams going in from the country, as there were years later.

Q. Do you know how far from Chicago down the river they went in teams with merchandise?

A. Down the Desplaines?

Q. Yes, down the Desplaines river and Illinois river, to what points they went down with teams?

Objected to as not proper re-direct examination.

A. Well, I know they did go with teams as far as Morris. I don't know of any below that point.

Q. Do you know of any merchandise going up the Illinois

river to points on the Illinois river and then being hauled by teams into this territory?

Objected to as suggestive.

A. No.

I don't think there was any.

Re-cross Examination.

These skiffs that the trappers had on the river were used to take the trappers out to where they set them. They brought back the furs, mink and muskrat, which were principally the animals being trapped at that time, and once in a while they would catch an otter and hippopotamus,—no, I don't mean that; possum, that is it. There were a great many people engaged in the business of trapping in the early days; everybody, most, was a trapper that lived anywhere near that stream. I have known one man, and that is the only one that I knew personally how many he had. He had 200 traps that was principally for muskrat. This man didn't happen to want to use the Desplaines river, he had plenty right between where he lived and I lived, in the big slough there in wet weather. Others that did use the skiffs, used them to carry these traps out and set them at different places. They went every morning and gathered up what they had caught and skinned them and brought the skins in. Game of that kind was very plentiful here at that time. I was not acquainted with those men that were on the river, but I knew that was their business. Charley Smith, probably a good many people know him, or know of him, was a great fur gatherer. He didn't trap any himself; he bought furs from the farmers and others. Most of the trappers in the early days—away back about '40—most of them lived right here along the river bank and had a skiff of their own; they were not what you might call professional trappers; the professional trappers came a little later, in 1835 and '38; they came from Chicago and some other places. I don't know anything about above Joliet, but below Joliet they trapped as far as I know down to the mouth of the Kankakee. According to Schoolcraft, when the Desplaines and DuPage come together they form the Illinois, and that junction is about 2 miles, maybe a little more or a little less, from the junction of the Kankakee. My understanding is that it is the DuPage river and the Desplaines river that form the Illinois river, and the

Kankakee empties into the Illinois about 2 miles below the head of the Illinois. I know where the Economy Light & Power Company has commenced to build a dam. It is down
at Dresden Heights. I have been down there. I was
1751 down there last September. The Economy Light &
Power Company were at work then building their dam. I didn't see them building their dam. I know the point in the river where the Economy Light & Power Company started to build a dam; I know they are reported to be building. There are a great many who have the idea that that is on the Desplaines river, but the old Indians that were roaming around here in 1835 have always said it was the Illinois just as soon as the waters of the Desplaines and DuPage came together, and I think it is borne out in Schoolcraft's Explorations, and one thing and another, of the Mississippi Valley. I know that is what they always said. They appeared to be Indians that were well informed. No, I didn't know Shabbona.

1752 R. W. KILLMER, a witness for defendant, was examined in chief by Mr. Munroe, and testified as follows:

Direct Examination.

My name is R. W. Killmer. I live at 513 Herkimer street. I was 86 years old last month. I came to Joliet in 1844. I was 22 at that time. We came into this territory by wagon from Cleveland. Between the years '44 and the opening of the Illinois & Michigan Canal, I was farming in the Town of DuPage, and had all our grain to haul to Chicago. I went up lots of times, and considerable grain to haul. We met very many people on the road. There was no other way of getting grain to Chicago. There was no other way of getting supplies or produce into this territory from Chicago than
by teams to my knowledge. I never saw any kind of
1753 freight boat or boat carrying merchandise or freight,
going up and down the Desplaines river at any time.

Q. Did you ever hear from any creditable source that any boat carrying merchandise or freight ever did go up or down the Desplaines river?

A. I never did.

I had occasion to ford the Desplaines river at Goose Lake.

My farm came right down to Goose Lake up here above Lockport. I often crossed there, because my cows ran down to the river, and in a short time they would cross the river over to get better food, so I had to go and get them occasionally. Many a time I had to do it. At those times I would cross on horseback. I have crossed the river above there and below there. I guess I never crossed it below Joliet. I think

the Daggett Mill was in the Desplaines at Lockport when
1754 I came here in '44. I know I went to mill there often.

The depth of the water in the river in ordinary times, excluding the time of extreme freshet or flood, was rather slim for navigation purposes. That would be my opinion. I can't see how boats could navigate it at that stage. The roads between my farm and Chicago in early days were not any too good, because it was a rainy season.

Q. In your opinion, if the Desplaines river could have been used for any useful purpose of commerce before any opening of the Illinois & Michigan Canal, would it have been used?

Objected to.

A. Well, in my judgment, I think it would.

Q. Then, as I understand you, in your opinion the reason why it wasn't used for commercial purposes, was that it was not capable of being used.

Objected to.

A. Well, I would think if it could have been used, it would have been used of course. That would be my opinion.

Q. Were there times in the Desplaines river when there was scarcely no water running over the riffles?

Objected to as leading and suggestive.

1755 A. Yes, there was very little running over.

I have run my fences into the river a little ways, not very much. I don't think very many of those owning farms along the river, did that. I can't remember anybody running across the river at the time I am thinking of, because there was no wire, but maybe they have since been using wire.

Cross-Examination.

I said I had not heard from a creditable source of any boats being on the river. What I meant by creditable source, was where a man of noted credibility for truth and veracity, would tell me such a thing that I could believe him.

1756 Where I crossed on Goose Lake, the water was pretty nearly up to the horses' belly, almost all the time when I crossed there. It was about 2½ feet deep, a small horse.

As to how much water would be necessary for navigation for commercial purposes, that depends on the craft some I should think. When the canal was opened, I boated on this canal a little. Four feet of water was all that our boat would draw and go aground at that. I should say four feet of water according to my experience, was necessary in order that profitable commercial navigation could be had. And when I said the water was rather slim in this river for navigation purposes, I had in mind that there ought to be 4 feet of water. The river was very rapid at the time I had

1757 occasion to cross it. In the summer time there wasn't no flood or anything of that kind. It was in the low stage of the water. The place where I crossed wasn't a rapid place. Goose Lake in low water had no very great current. The roads to Chicago were pretty bad at certain seasons of the year; in dry weather the roads were good. In wet weather they were muddy and bad. The same condition prevailed all over this country in an early day.

I have forgotten how big a town Joliet was when I came here. I did know, but I have forgotten. It wasn't very big in '44. It was just a little village at that time. People

1758 as a rule were poor people.

At that time Governor Matteson was the big man. He kept store in Ottawa street, I think. He was one of the biggest men I know of at them times.

Q. Those men were not any of them able to own and operate boats that would cost a thousand or two thousand dollars apiece, were they? Take the farmers that lived round you, and the men that lived in Joliet at the time.

A. No, as a general thing, that class of people were striving to fix their homes and farms.

The only means these people had of moving themselves, with their products, was by teams. They had no boats, and I don't know but they might have been able to have them, but I don't know it.

I went to Chicago once myself with an ox-team, and

1759 saw plenty of others on the road. I don't know whether the ox-team were the principal means of hauling rather than horses. We had prairie schooners that came from the

south of here. A prairie schooner was a covered wagon, with 3 or 4 yoke of oxen on it.

Re-direct Examination by Mr. Munroe.

Q. Did you ever hear from anybody whether creditable or increditable, whether the boats for the purpose of commerce ever went up or down the Desplaines river?

A. No, I never did.

Q. Did you ever hear of anybody owning a boat on the Desplaines river, for the purpose of carrying commerce?

A. Never did.

The canal was opened about four years after I came here. As soon as the canal was opened, we took warehouses in Lockport, and from our neighborhood took the grain there. As soon as the canal was opened, that was the method of communication between Chicago and Joliet, and was used by the farmers.

1760 I never knew a farmer sending his grain on the boat. He generally took the grain to the warehouse and the warehousemen loaded it on the boat, and sent it to Chicago.

TESTIMONY.

3222 ROBERT MOORE, witness called by defendant, testifies:

Am approximately 70 years old. Reside at St. Louis. Am civil engineer. I have been the largest part of my professional career employed in the location and construction of railroads,—with lines that have been merged into larger lines or systems. Witness mentions several railroads that he assisted in building and says, I have also constructed a terminal system in St. Louis for the Merchants Bridge

3223 Terminal. Have had much to do with the construction of the Southern Illinois, part of the Southern Illinois and of the Southern Missouri. I have practiced my profession about 45 years. I have served as consulting engineer for (witness mentioned several railroads). I am now consulting engineer for Chicago, Burlington & Quincy

3224 Railroad. My work as a civil engineer has brought me into the work of river terminals, their location, con-

struction and protection; protection from the action of the water, from the floods and the erosion by the currents. This includes protection from the Mississippi river. I have
3225 built river terminals in the Mississippi river at St. Louis and fifty miles below at St. Genevieve, two in each place. I was sewer commissioner for four years and as such was a member of the Board of Public Improvements. I was a member of the Board of Engineers appointed by the President to pass upon the plans and the value of the work at the mouth of the Brazos river, and the value to the Government. The year 1897. That work consisted of jetties built out into the river to deepen the channel and to resist the action of the waves. It is on the Texas coast about forty miles west of Galveston. Those works are very extensive and I am not
3226 sure whether they are in existence now or not. In 1899 I served as a member of an engineering board whose task was to prepare a plan and an estimate for a deep water channel in the southwest pass of the Mississippi river. The Eads jetties is the south pass. The southwest pass is now the greater channel. The plans and estimates
3227 were substantially carried out with some changes. I was occupied about a year in that work. My recollection is that our estimate was about six million of dollars. In 1896 I appeared before the Southern California Harbor Board, to present the case for the San Pedro harbor; that was followed by a report of the board in favor of San Pedro, which was ratified by Congress. I have had occasion to consult flood conditions in locating the river terminals in the Mississippi and in locating railroad crossings; at every river you must consider the flood condition.

3228 In the year 1904 or 1905 I was appointed on behalf of the owners of bridges over the Kaw river in Kansas City, immediately after the flood of 1904, a body consisting of some seven or eight railroads, and the Union Stock Company, which had a bridge over the river, to report upon the practicability of regulating floods of the Kaw river. After a very exhaustive study of the subject, I did report a plan with an estimate. I think the work was not carried out for the reason that a local board intervened which has tangled it up so that I think nothing has been done. It included all the owners of bridges over the Kaw except the city and county. Beginning with the year 1899, I have, every year, periodically inspected all over the river crossings of the Burlington system, of the Mississippi and Missouri rivers.

On the Missouri, near the mouth, is a crossing known as the Bellefontaine crossing; the next one is the Kansas City crossing, above that is the Roulo crossing; next above that is the Nebraska City and next is the Platte crossing
3229 which is the last one owned by the Burlington. I have also less critically examined the Atchison crossing and the Leavenworth crossing over which they run trains. On the Mississippi river crossings, there is the Quincy, the Burlington, Rock Island, and Winona. My examination of these bridges was with reference particularly to the maintenance and condition of the superstructure and the substructure of the bridge itself, but the point requiring chief attention has been the river protection work, work designed for the protection of the bridge and the railroad from erosion and destruction by the Missouri, mainly the Missouri,
3230 because that is an especially unruly stream. My work has informed me as to the effect of rivers and the wash of rivers upon earth and banks of rivers. When I spoke of river terminals that included river inclines, that is at St. Louis and St. Genevieve. I have been vice-president of our local engineers' club at St. Louis; I have been president
3231 of the American Society of Civil Engineers. Am a member of the Institution of Civil Engineers of London. I have had occasion to study the effect of rivers or pools upon earthen, artificial embankments. My father was an engineer and builder of canals and my earliest recollections are hearing his discussions, so I was brought up in an atmosphere of canal engineering. My father had to do with the White Water Canal in Indiana, built in the early '40s. My father's
3232 father I knew very well. In his early life he was an engineer on the Erie Canal and then on the North Branch of the Canal of the Susquehanna, canals of Western Pennsylvania, particularly the canal from Beaver to Erie. I think he located and partly built the West Pennsylvania Canal. I visited the Desplaines river at Dresden Heights at the proposed dam of the Economy Light & Power Company yesterday. I examined the towpath bank at that point—I mean at the point indicated on the map shown. The character of the material as granulated clay or clay interspersed with gravel, with somewhat large stones. I class that as very desir-
3234 able material for the construction of a bank of that character. Assuming that the dam will raise a pool which will flow on the towpath bank, on the river side, to a point seven feet below the original level of the towpath, before

this two-foot addition had been made, in my judgment, I should not expect any injurious effects. If there was a very large pool unprotected there might be an injurious effect, due to waves. It could be avoided by covering the banks with riprap. Riprapping is not a very expensive operation. The necessary protection there could be accomplished at a moderate expense. I think there is no engineering difficulty in protecting that bank against any such wave action. Not
3235 all of it would have to be riprapped. I went up to Channahon. Following the towpath bank at a number of points, the bank is very shallow and would require no protection at all. At other points it is at present very well protected against the action of the waves by dense undergrowth of trees and brushes. Roughly speaking, I should say half of it is protected in that way. I have seen the plans of this proposed work. I do not know what the estimated cost
3238 of building the dam is. I would not undertake to estimate that. I have not measured the height or length so I could only give the unit cost approximately, that is the cost per foot, assuming a certain height of the bank. I estimate the cost of riprapping the banks 12 feet in vertical height, it would be measured on the slope 27 feet, $3 per running foot of the embankment; that is measuring a foot along the embankment, which for a mile would be $15,840 per mile. I expect that that cost would cover a very large part of the banks, a good deal of it is less than 12 feet and some of it is more than 12 feet high. If 16 feet in height it would be 36 feet on the slope, that would be $4 per lineal foot, or $21,120 in the mile. I should say that the latter figure was an outside figure. This riprapping, carefully placed twelve inches thick to the top of the bank. I feel confident that would be sufficient to protect the bank. I think there would not be danger of injury to the bank, assuming that the level of the pool is about seven feet below the original level, from satura-
3240 tion of the bank. I examined the towpath bank in this sense. I saw soundings made by one of our party as to the depth of the water, out toward the center of the canal and at another point I actually sounded myself from a skiff, and I found that for several feet from the water's edge, it was approximately level and then broke off with quite a steep slope. First of all the earth embankment on the canal side has been somewhat wave worn and it is very nearly vertical toward the water's edge. Beneath the water there was

a depth yesterday of 12 to 18 inches for three or four
3241 feet from the water's edge toward the center of the canal. At that point it breaks off at a very much steeper slope, I should say 45 degrees. There is a bench there three or four feet in width. (Witness shown map marked for identification as Woermann Ex. I, Atlas, p. 3958; Appendix, ...) Near the location of the power house some new stones have been piled on the water edge. I cannot state from personal knowledge whether that stone goes beyond the bench into the canal or not. From my observation there I do not think five feet of the navigable channel of the canal has been filled up by that rock. I don't think it would make any difference in regard to danger to this towpath with such a pool on the river side from vermin, muskrats, crawfish, etc., than there would be without the pool.

3243 I observed the old piers standing in the middle of the river above the dam. I went out to the water's edge and saw them. They were said to be piers of an old aqueduct feeder. I would not undertake to restore the
3244 aqueduct box on top of those piers in their present condition. They are badly disintegrated. I do not think I would carry the water by an aqueduct of such nature as used to be carried upon those piers. I should think it would be better to carry it by what is known as an inverted
3245 siphon by iron or concrete pipes. It is simply pipes that join together so the water will not come out of them, which are laid on or below the bed of the stream, and then brought up to the desired level on each side; simply a downward bend in a closed iron pipe. The existence of the proposed dam would not be an obstacle to carrying the water by such an inverted siphon. As I understand the condi-
3246 tions the existence of the pool created by the dam would present no obstacle to boats in being taken into the Illinois and Michigan Canal from this feeder. You could provide locks which would let you in from either side.

Q. I show you a blueprint or a profile of the Illinois river and of the Illinois and Michigan Canal, marked Woerman Exhibit 2. State whether or not in your opinion Desplaines river as shown by that profile, was a navigable stream.

A. I have examined the profile. It shows at one point, through the City of Joliet, a water surface which is approximately from six inches to eighteen inches above the bottom, that bottom being largely rock, as I understand from my observation yesterday. I should say a condition of that kind

was inconsistent with navigation in a commercial sense. At a point further down, it is also a much steeper slope, which at one point, where the surface of the water almost touches the bottom, certainly less than a foot deep, on which I should say the same thing. That is a very steep and a very shallow channel, somewhat deeper until we reach a point near the mouth of the Kankakee, where it is an old dam where the depth is approximately zero—I suppose on the dam—but very shallow, even without the dam. It would be very near the proposed Economy dam. I think it is a short dis-
3248 tance above it, near the mouth of Desplaines river. I should not call the river navigable at that point. Yesterday I went from Joliet to the mouth of the river. Our route was rather circuitous and not along the river. I
3249 saw it in Joliet from the Rock Island bridge. I should say that on yesterday I didn't conceive of any commercial navigation that would undertake it.

Cross-Examination.

3250 I will be 70 years old my next birthday. Commenced engineering when about 25. The principal work was in railroad engineering. Was chief engineer for Merchants Bridge Terminal Railway, St. Louis, on both sides of river. There is a steel trestle for cars. The work was substantially laying several railroad tracks that center at the end of the bridge. No hydraulic features were there. I was consulting engineer for two terms for the Terminal Railroad Association of St. Louis, which owns the Eads bridge. The work there was similar to that just mentioned. I was identified with the Cleveland, Loraine & Wheeling before it was merged as part of the B. & O. We crossed the Tuscoras river in one place, put a dam across it and diverted it into a new channel. I was identified with a branch of the B. & O., running southeast from Springfield. Except as incident to the crossing of streams, there was nothing exceptional there.
3253 Was identified with the Illinois Central from St. Louis to Springfield. There was nothing about that different from ordinary railroad engineering. In Southern Mis-
3254 souri we had direct contact with the Kaskaskia and Mississippi rivers. We crossed the Kaskaskia but ferried across the Mississippi. Locating a ferry at right angle is a matter of difficulty. The river terminals mentioned are perhaps called car ferries, two of them were for the crossing

of the Southern Missouri the other was a terminal built for the Illinois Central and one which had failed for the Vandalia.

3255 Q. Let me summarize: Was there anything in any of those matters other than the ordinary railroad building and the connecting of a railroad track with a ferry?

A. Well, the building of an incline, which shall be successful, involves a consideration of the regimen of the river and your ability to protect it after you have built it. The one which I rebuilt for the Vandalia, had failed because of the faulty location and had been considerable source of trouble and expense for many years. I was consulted in the matter. I relocated it, and rebuilt it, and it was practically successful.

3256 A delicate proposition is locating and building it properly and protecting it against the action of floods and ice.

I was sewer commissioner in St. Louis four years; that had to do simply with the sewer system, to get rid of the sewage of the city but there were some serious problems in connection with it. We put in all kinds of sewers, one very large brick and stone one, 20 feet high. I did not make the

3257 original design. The construction had begun before my administration. I extended it and I had occasion to note some defects in its original design. I suggested changes and they were adopted, although completed after my resignation. That sewer was constructed more than 30 years ago. It broke out in high floods at one time; I do not mean to say it went out of service. There were two breaks in it, before I took charge of it. It was afterwards repaired and is in use to-day.

3258 A private syndicate of gentlemen living in Chicago attempted to build the harbor on the Brazos river in Texas, 40 miles west of Galveston. There were walls, mattresses and stone called jetties, which were built mainly to confine the waters of the Brazos river, so that it would scour out the mud and maintain a navigable channel. There were jetties similar to those built by Eades at the south pass of the Mississippi. The work was to control the current of the Brazos river so that it would scour a deep channel, to secure deep water.

Q. Is it not the truth that the sand or silt coming down the river, deposited itself just outside the mouth of the river in the gulf and formed a bank that the boats couldn't get over,

and wasn't the problem to build some stone walls so as not only to cause the current of the river to wash but to have the currents of the ocean catch all sand and carry it away, so it would not form again.

A. After the material had been carried out to the end of the jetties, it was hoped the ocean would do the rest. It was not absolutely successful but relatively unsuccessful. They didn't get the depth of water they anticipated; in that sense it was unsuccessful. The contemplated navigation at the
3260 Brazos Harbor was an ocean going commerce. In 1899 I served as a member of engineering board made up of two army and two civil engineers, to make plans for the outlet of the Southwest Pass of the Mississippi River. I was one of the civil engineers. Pass a Loutre is a wider pass but the Southwest Pass is deeper, except at the mouth. It is the best pass from the point of navigation from all
3261 of them. There are three passes at the mouth of the Mississippi River; the one further west is the Southwest Pass and the one further east Pass a Loutre and the middle one, South Pass. For the last thirty years commerce has gone out of the South Pass. As to whether it is true that engineers have estimated that 45 per cent. of the water of the river goes out of the West Pass, about the same amount out of Pass a Loutre, and about 10 per cent. out of the South Pass, will say I don't remember the figures, but I am quite sure that is not true. The Southwest Pass is deep
3262 water. The depth of the Southwest Pass, through the greater part of its length, is from 50 to 60, sometimes 90 feet, with shallows at the upper end and a bar at the mouth. That was its normal condition. I think the depth over the bar at the upper part was 18 feet, perhaps 20.

The problem we had to do was to find means of deepening the waters at these shallow places, to get rid of the sand bank and to take it away. The government has taken that sand bank away, cut a channel through it, and the material, which was the obstruction, has been taken away. Part of it was done by building stone walls in the ocean until the current washed it out; the rest was to dredge it. We expected both agencies would be used, the force of the current, aided by dredging, and in all probability, a dredge would be necessary to be kept at hand, to keep it open hereafter.

Being asked if I am not mistaken about that, and isn't this the truth: That the object we gentlemen were called upon to accomplish was to prevent the necessity for dredge boats and

to make a channel that would wash itself and carry the current until the lateral current of the Gulf would carry it
3264 away, will say that was a consummation devoutly to be wished, but we didn't expect it. I know Professor Haupt and know his scheme to accomplish that purpose, consisting of one pier instead of two.

As to whether it was a problem that we gentlemen were called upon to determine whether or not Professor Haupt's scheme of one wall, one jetty would fill the bill, or whether it would take two, will say the problem was simply, as I say, to prepare a plan for deepening the Southwest Pass of the Mississippi river. Incidentally Professor Haupt's plan was considered, but it was not considered feasible and it was not the plan which was formulated.

Being asked if it was our problem to build a stone wall into the Gulf of Mexico, out onto the sand bar, and by the aid
3265 of a dredge and the current afford a deep channel into the ocean, will say that is about it.

As to whether it consisted in carrying out cargoes of immense big stones, dumping them over and forming a wall of them, will say not very large; they were to be founded on mattresses and protected by piling. Really, I can't tell you because I had nothing to do with the execution of the work, but only on top would they use very large stones. On the top of such jetties it is desirable to use such stones as would have to be lifted by derricks. It was topped off with stones four or five feet square or more.

The part we had to do was to help plan this stone wall. As I understand, it is nearly finished. I can't speak advisedly, but I think they have to use a dredge in connection with the current.

The chairman of the commission was Colonel Robert, U. S. Engineer Corps, the other members were Major George M. Derby, Major Starling and myself.

I don't know of but one estimate to make the roadway at and deepen the Southwest Pass. There was one made a short time before the appointment of our commission, but I
3268 have no personal knowledge of others. I was associated with the establishing of the harbor at San Pedro. The truth is, there was a conflict of interests, between San Pedro and Santa Monica, as a harbor for Los Angeles. The board was appointed under an Act of Congress to go and determine which of the two places would make the better harbor. Approximately, the board consisted of Admiral Walker, a mem-

ber of the coast survey, and I think three civil engineers; George Morrison, Prof. Burr and Col. Morgan. Los Angeles is about 18 miles from the coast. These two points are about equal distance from Los Angeles. The Huntington interests were striving to establish Santa Monica as the harbor, and other interests were trying to establish San Pedro as
3269 the proper place. I represented the owners of the Los Angeles Terminal Railway. There were questions of harbor engineering involved, the proper location of the breakwater, the shelter it would afford, room for anchorage, the possibility of developing the inner harbor, which was present at San Pedro and not at Santa Monica.

3270 Being asked if the inner harbor was not already established at San Pedro and appropriations made and work done, and practically finished, will say in a small way, yes; but it admitted of a very large development. The problem was the establishment of a harbor refuge, and of commerce, two quite different things.

Being asked to take the coast line from Santa Monica and the angle incident to the coast line and comparing that with the angle of incidence to the coast lines at San Pedro, and if that wasn't the problem that this board had to decide
3271 and did they not decide it on that proposition, I should say no, they decided it on a number of considerations, the considerations being the possibility of obtaining adequate shelter at two points for a harbor of refuge which depended upon a lot of questions of topography, of depth of water. The water was deeper at Santa Monica but there was no shelter. One feature was that the San Pedro harbor
3272 had the least exposure. I think it is true that three several boards prior to this one, appointed by Congress, had each selected San Pedro. One feature was that the space for railroad tracks to get to Santa Monica was confined to a space on account of the mountains and that the Southern Pacific Railroad controlled that and other interests insisted upon going to San Pedro. Several hundred thousand dollars had been appropriated and expended in building the inner harbor at San Pedro before this commission was appointed.

As to whether the inner harbor at San Pedro was made by a strip of land at some little distance from the coast line, extending parallel with the coast line, forming a possibility of extending it five or six miles, will say it was the coast line, that is, within the inland there was swampy, marshy territory which could be very easily dredged and developed into a har-

bor of enormous extent. There was a small river there up which there was navigation. I did not know the depth of the water. I think there was approximately five feet, but it had already been deepened to 14. One of the important features was to consider which of the two places would afford
3274 the best shelter in case of storm. To constitute a harbor of refuge at Santa Monica it was very difficult to construct a breakwater which would afford adequate protection. At the time I speak of there was one pier built by the Southern Pacific, extending 2,000 feet at the end of which they got deep water. Near the shore it was much shallower. It was a very expensive pier and its further development
3275 was a very expensive operation. The prime point in the problem was first to try to obtain a harbor that should give adequate protection against the wind and waves, which would constitute it a safe harbor in rough weather. There was no sea wall at Santa Monica. The building of an adequate protection against the wind and waves at Santa Monica was a very serious matter. That was the controlling factor as far as a harbor of refuge was concerned. The building of such a breakwater at San Pedro was simply the extending of an existing point to make it adequate to the future needs of commerce. In the report made, Mr. Morgan dissented. The engineering projects consisted of building suitable works, breakwaters and dredging.

3276 In connection with the Kaw river at Kansas City the problem was to provide proper protection against the recurrence of such a flood as had happened on the river in 1904.

As to whether our prime object was to deepen the river in some way so that the flood water would pass off rapidly,
3277 will say, of course the bridges, or rather the piers of the bridges as a mere obstruction to the flow of water were considered.

In most cases the piers of the bridges were made of rock or cement. The Kaw river runs in earth embankments. It was a silt bank, where the banks formed of silt, and required protection, and part of the project was a recommenda-
3278 tion for the protection of the banks by a plan of extended revetment. Revetment is a word meaning to clothe the banks, protecting it against the action of the waves. It has already been revetted and protection work put in, but of a very bad sort, most of which I recommended removed. Riprapping is one method of revetment. There was an arti-

ficial embankment made by dumping the refuse from the stockyards. It was an embankment which did not need protec-
3279 tion, the others did. There were no other artificial embankments, nothing except the natural banks of the river. I recommended revetment. There had been a good deal done in the way of protection work including some spur dikes. Spur dikes is a kind of stone built out from the banks of the river projecting into the river at right angles, usually to the banks of the river. I believe in upper river they are called wing dams. The point where they are used for the
3280 purposes of navigation is to contract the channel. They are also sometimes used as a means of bank protection. If they are built very close together they have the effect of creating a new bank, but in the case of the Kaw river it was clear that they were sources of obstruction and damage and of no value whatever, and I recommended the removal of all of them. The prime object was to provide a more efficient channel for the carriage of flood waters and incidentally to close the banks so as to prevent damage to adjacent industries.

3281 Q. If you build a spur dike or a wing dam from the shore into the river, the effect of that is to immediately narrow the channel, then why would you build a spur dam to cause a bigger and better channel?

A. There was not room enough. The spur dike occupied the space needed for water. My recommendation was to take them all down.

I have examined railroad bridges that cross the Mississippi and Missouri rivers. With a view of protecting the channel in part so that it shall always go under the bridges; also that it shall not flank the bridge and cut the railroad in two.

All the usual devices for protecting the banks of the river are used.

3283 The examination of these bridges crossing these two rivers was to protect the piers next to the land at each end of the bridge from being surrounded by water and destroying the bridge; that was one part of it. The railroads had to take care of the river bank for long distances up the river in order to protect the railroad, sometimes for miles or more away from the site of the bridge. One instance is at
3284 Rolo, that is a crossing of the Missouri river, thirty or forty miles south of St. Joe, on the Burlington Railroad. There is no trestle work but an embankment. It has been filled in for years, existing as a solid bank. In that case it

has been necessary to carry the revetment back three miles up the river.

Another point is Nebraska City. The problem is somewhat difficult, but the general feature is very much the same. There is no trestle work there excepting over the old channel some distance east of the present river. Mr. George S. Morri-
3285 son built the bridges at the points mentioned years ago.

Plattsmouth is another instance of the same kind. That is the crossing of the Missouri River by one of the Burlington lines. In that case that would be necessary to extend the revetment for a long distance up the river. Mr. Morrison designed that bridge work originally and built the bridge, but the work of revetment building is a continuous work; must be continually renewed and extended, because the river is constantly threatening to get in behind at the upper end. The Government has done in some cases a good deal of it. I don't know that they have done any of it at Plattsmouth.
3286 I am not familiar with its past history throughout, but as I understand it, all the existing revetment at Plattsmouth has been built by the Burlington Road.

Being asked if any of these matters that I have mentioned, either that counsel has asked me about, or that he has not asked me about that I participated in had a river on one side of the bank and a canal on the other, with a bank relatively a few feet between them, will say, no, sir; exactly that situation was not presented.

"Woerman Exhibit 3" presented and marked for identification.

Redirect Examination.

I have made an examination of the map (Woerman Exhibit
3288 3) since I was on the stand last night. That is what is known as a contour map of a part of the canal and Desplaines river extending from the mouth of the Kankakee river, several miles upstream.

All the lines showing elevations are drawn out showing differences of level of one foot. They show the level of the towpath bank, the level of the base, and the level of the intervening space. I have examined the plat with reference to ascertaining the elevation of the towpath bank for the portion of the canal shown upon the map, and from that examination figured out the cost of riprapping that bank in such

a manner as to protect the bank when the pool shall have been raised. I got the elevation of the base of the embankment at intervals of 500 feet along the line of the canal from the mouth of the river to the road extending at Channahon, a distance of 20,000 feet. The base of the embankment, of course, the top level of the canal is an estimate as an elevation of 86 on the datum plane used upon this map. The
3290 top of the bank I estimate as 86 level, of course, as it goes, it is a level work. Then, the difference between the elevation of 86, and the series of elevations of the toe of the embankment, give the difference, and that is the slope of the bank to be protected. From those data I made an estimate on two suppositions, the first of which, that certain parts of the bank which are rather, their insufficiency is greatest, and where there is no protection from the vegetation, the trees, the underbrush, only should be protected a stretch of 2,000 feet from the mouth of the river, and another stretch of 3,500 feet at the point 6,000 feet above, and extending 3,500 feet. The cost of riprapping that figured out $22,400. That is the part which I should say, practically the only part now, where revetment was essential; but I also made another estimate upon the supposition that the whole embankment was revetted for the entire 20,000, which figured $50,000 in round numbers; that is, 20,000 feet or 3 8/10 miles. The revetment extends to the top of the bank. The top of the bank would vary at various places in this 20,000 feet; it varies from nothing to 20 feet vertical.

Recross Examination.

3293 Being asked if a dam is constructed at the proposed site it will flood the towpath bank on the river side, would say it will flow along the base of the bank and cover the base of the bank for a considerable part of the way, and for another considerable part of the way it won't flow against the base of the bank. The base of the bank
3294 is where it joins with the natural surface of the ground. I do not recall how high up along this towpath bank it will be flooded.

I understand that the ordinary level of the pool of the dam will be seven feet below the present elevation of the top of the towpath. The top of the towpath is now supposed to be in its present condition, 84 as I understand it.

Being asked how much it is up and down in feet, how high

that bank will be flowed up and down from the top where
3295 the water would be alongside of that bank, will say that depends upon where it is. That elevation of the water is 7 from 84, is 77, as the normal stage of the water in the pool of the dam. Now, the base of the embankment, or the base of the natural surface of the ground, rather, at the base of the bank varies from 66—that is the least I find, (6, 70, 74, up to 84—in other words, the height of the bank varies from zero to 15 or 20 feet. It is zero where the surface of
3296 ground is 86. In estimating these costs I took into account simply the cost of riprapping. The cost of widening this towpath bank nor for raising it is not taken into account, just riprapping on the outside. I did not get any information as to where this stone was to come from except that it comes by boat. I was told by the contractors what the cost of getting it was and based my figuring on that. The thickness of the riprapping was 12 inches. Riprapping
3297 is not solid masonry; water will soak through it. I do not understand that an embankment of clay is saturated with water. The understanding is that it is impermeable.

Q. If you dig a trench three feet wide and six or eight feet deep in blue clay and build a cement wall a foot thick on that, and a superstructure above it and leave the sides of your wall so that the water gets in there by the side of your cement wall, will it not saturate through the blue clay, go underneath your wall and be very liable to cause your wall to slip and fall?

3298 A. I should say no. I would say this: A very usual method of protecting a reservoir embankment against the action of water permeating the embankment and destroying it is to build what is known as a puddle wall or core, in the center of it. The puddle wall is built of clay for the purpose of arresting the flow of the water through the embankment. What they put in on the outside of the puddle wall depends on what material is at hand. If that is clay it may need no puddle wall; if it is sand or other material that is easily permeable with water, that water would be arrested by the puddle wall. The puddle wall is not protected with cement or anything of that character. It needs no protection.
3299 I found a bench or wave berm, as stated yesterday, on the canal side of this towpath bank between three and four feet wide. I did not go much into the history of it, whether it was a matter of original construction or whether

it is the result of the action of the waves and the use of the canal, I should think very likely it was the action of the waves. If it was full up as it originally was, I should think it would be more stable than it was before. It was a gradual washing of the dirt from behind the wall which may have let it down. By behind the wall, I mean on the canal side. There is a very considerable wave motion due to the motion
3301 of the boats. On the other side where this pool will be formed and where the width would be anywhere from 600 to 800 feet, and where there is a considerable current
3302 likewise coming down, the banks will need protection. If there was a navigation such as could be had on 14 foot depth of water by boats of that magnitude, it would emphasize the need of protection. The effect on the river side if made up would be to saturate the outside of it a short distance in, perhaps a few inches. If it is wet in 3 inches I should say that the stone will not be liable to slip down and fall. The slope given was two feet horizontal to
3303 one vertical. I did not examine the specifications as to what the slope would be—I saw none with reference to the protection of this bank. I saw a cross section showing the revetment. I think it was Woerman Exhibit 1. That is the only thing I have seen, either of plans or specifications indicating the manner of protecting part of this work. In raising this towpath bank I understand it is left the same width as before, simply raised up a little higher. There
3304 was a wall of stone built in the canal resting upon this berm or bench I mentioned; that would narrow the water in the canal probably two or three feet, that was in a very shallow water, not navigable water. From my observation it was about 18 inches to two feet above the level
3305 of the water. I saw it sounded where it was about 18 inches; that was on the edge of the canal. This stone embankment is on the edge, presumably on that bench. I did not sound it right at the end of this stone bank. I don't know how far down into the prism of the canal this embankment went.

I do not know the price of labor employed down around the side of this place. I do not know what it would cost in labor to do this riprapping, because I have had no occa-
3306 sion to work in that particular locality. The stone might be brought from anywhere on the canal. I don't
3307 know where. The prices of riprapping do not vary very greatly. It is all about the same thing. You can get

stone all the way from fifty cents to one dollar a yard, almost any place in the United States, fifty cents is the minimum. I used a higher price in my estimate. I used three dollars a yard in places. By fifty cents, I mean raw material. The difference between one dollar and three dollars would be for the work and for the transportation. Fifty cents
3308 would be a very low price and a dollar would be a medium price. I put the cost of riprapping at one dollar a square yard. That is equal to three dollars a cubic yard, which I think is more than it will probably cost. In this estimate I lumped the raw material and labor together; that was predicated upon my own experience as to the probability and the reasonableness of that price. I mixed those two. I used virtually my own judgment of what it ought to cost. Have had some experience in trying to hold the Missouri river bank. The standard estimate for complete revet-
3309 ment of the Missouri river bank which includes a mattress going out underneath the water and the riprapping and the incidental work of placing, is about ten dollars per running foot. That, however, is a very much more serious thing than mere riprapping, and I would say that that is a full and high estimate. My figures were only for riprapping one side of the bank and I allowed nothing for any other cost or expenditure, save and alone the riprapping. I would say that the feeder where the old piers were standing was from 18 to 20 feet wide and probably 4 or 5 feet deep. The water can be siphoned from the river up into the canal. I have not figured out the size of the siphon it would take to run the water that would be carried in the feeder, but it would be entirely practicable to do. The usual method is lay-
3310 ing cast iron pipes, which may be probably 48-inch pipes. The pressure of the water behind it makes it go uphill. It is a very common process. Water flows through bends in the pipes. It is simply governed by the head of the water at the upper end. The full term is an inverted siphon. The velocity through the pipe would be very much greater than it was through the feeder. You would not need the same cross section in the pipe as in the feeder. The
3312 velocity of the current through the siphon would depend upon the elevation of the water above the siphon, between the upper end and the lower end. The difference in levels between the place where it goes in and where it comes out.

3313 Q. You said that the velocity of water in the siphon would be very much greater than it was in the feeder. Therefore, you would not require so big a pipe as there was area in the feeder, and I am asking you if that is not dependent entirely upon the elevation of the water behind the siphon?

A. The force which produces motion through the siphon is the difference of level between the water at the entering end and the end at which it goes out. In the flow of water in the channel that difference would be very small, but by making the difference of level greater you can produce any velocity you desire.

3314 The whole point is this, that in a stream in motion, with no water entering it or leaving it, the amount of water passing at any cross section is the same. If you have a small cross section, as you may, the velocity necessary to pass that amount of water is greater. In a broad cross section it spreads out and has a very slow velocity, but passing always the same volume of water per second. Now, in the canal, or feeder, being a much wider canal, the velocity necessary to pass a given amount of water would be very much less than it is in the narrow reaches of the same canal, or the same feeder, but with pipes there would be no difficulty in getting into the feeder the required amount of water. The head necessary to produce that is something that is very easily ascertained.

3315 Q. There is no data present in your mind or in fact that enables you to know that the velocity of water in this feeder, when it was in operation, was the same 3316 as the velocity of water in the canal?

A. Well, I haven't any idea about it. The velocity in the feeder would never be very much more than the canal.

I should say that as a rule the difference was very small, and that in either case the velocity is very low.

As to how big a pipe it would take for a siphon to put this water across there, in my judgment, I will say I can't tell you without figuring. I don't think it would be very expensive.

3317 Q. You spoke of vegetation along the lines of this towpath, or between that and the river, and I think you estimated roughly that half of the distance was in a sense protected by vegetation in one form or another, is that right?

A. Yes, sir. There is some quite large trees, up to
3318 12 inches in diameter. Really I cannot give you the estimate in figures. I saw quite a number of them. From Channahon down to this site of this dam, I went down on the towpath bank. There are trees on the slope of the bank itself, in some cases a foot through. I saw one stump on the edge of the bank that was pointed out to me and it measured three feet through; it was cut down and had
3319 rotted. That was at the top of the bank. It looked as though it was grown there after the bank was built. I think the bank has been there approximately sixty or seventy years. From the situation of the tree, it looked as if it had grown there since that time. At some points the undergrowth of smaller trees are quite thick. At others they are sparse. It is brush up to saplings two inches in diameter up to
3320 large trees. If it is flooded with water and below the level of constant water, it will disappear; where it is only occasionally flooded, it will not. Where it is below the level of constant flooding, the trees will die.

Re-re-direct Examination.

3321 Protection is needed below the level of constant flooding only as a basis of security for the support of that which is above.

The Southwest Pass of the Mississippi has not yet been opened. The width of the Southwest Pass is six hundred feet. The projected width of the Southwest Pass is a thousand feet. The depth in the South Pass is a maximum of 26 feet; the depth to be obtained in the South Pass, in the Southwest Pass is a minimum of 35 feet. In other words, the new channel will be 35 feet deep and nowhere less than 1,000 feet wide.

3322 The breaks in the Mill creek sewers at St. Louis did not occur in any work designed by me. A part of the sewer which was existing when I was in office, and which was in years before, gave way, and I designed plans for its renewal, which plans were carried out successfully. It has not broken down since. Mill creek was a natural stream. The whole of it was taken into a sewer and all the tributary drainage.

3323 In connecting with some railroad building, we diverted the Tuscarora river in Ohio, in building a dam across it and diverting it into a new channel. At times it was a

considerable stream. Its normal flow was about 100 to 225 feet wide.

The revetment of the Mississippi river is very different from the revetment of the Missouri river. The banks of the Mississippi are relatively stable. They are rocky, gravel banks which require very little protection. The cost of protecting and continuing the protection of the Mississippi river is very much less than of the Missouri river.

3324 I have had occasion to study the durability and resistance of different kinds of material for artificial river banks. I have in mind a long revetment or protection of the west bank of the Mississippi river at Quincy, which is exceedingly permanent. I think it is of very simple riprapping. There is no especial care, no mattress work. The material of that bank is of a gravelly nature. I think there would be no difficulty upon the hypothesis that the pool should be raised and that there should be 14 feet of navigation in that

3325 pool, in protecting this bank. The wash of the waves is greater in a narrow channel, due to the motion of the boats. It is a proper interpretation of my answer to say that the wave wash would be less effective on the outside of this bank if the pool were placed there, than the wash from the boats in the canal. In my opinion the manner of protection indicated on Woerman Exhibit 1 is adequate.

Regarding the filling in on the inside of the canal, all that I saw and all that I learned indicated that the slope of the part added was substantially a continuation of the slope below. By a conference with the contractor, I ascertained what the prices were for doing this work of protection. The cheapest labor does this kind of work generally.

Re-re-cross Examination.

3327 When I said that the wash on the outside of this bank would be less than the wash in the inside, I meant that with the same navigation, a given boat on the inside, with its narrow width of canal, would wash more than the same boat on the outside in a greater width. The width of the channel is really the greatest factor in the production of waves.

3328 Q. Suppose you have a pool of water from 600 to 800 feet wide on the river side of this canal, of a depth sufficient for steamboats to ply up and down, drawing 10 or 12 feet of water, and carrying 1,500 or

more tons of freight, and that they go at from 6 to 12 miles an hour. On the other a canal 60 feet wide of water with canal boats, drawn by mules on the towpath and traveling at the rate of from two to two and a half miles per hour; which would get the bigger wash?

A. I should think there should not be very much difference under those conditions.

3329 ELMORE W. BEWLEY, called on behalf of the defendants, testified:

Direct Examination.

My name is Elmore W. Bewley. I am a captain, 58 years old. I reside at Bowling Green, Kentucky. I have been steamboating 40 years, began when 18 years old. I have steamboated on the Ohio, Barren, Rough, Nolin and Cumberland rivers. I have a master's and pilot's certificate. Have been a licensed pilot for about thirty years. Have navigated sternwheel boats principally. Navigated on the Ohio
3330 and Green rivers about eight years, Ohio alone four years. Green river all told about 36 years. Trip about 200 miles long. The Barren river we navigated between Evansville and Bowling Green. I steamboated up the Rough river about 8 months (80 miles). Was on the Nolin river about six months; 14 miles navigable. On the Cumberland river, six months. Up to Nashville, 200 miles from the mouth. I have owned or had interest in the following steamboats: The Gayosa, Evansville, Bowling Green, City of Clarsville, Sun and Rescue. My constant occupation has been that of a steamboat man. I am still engaged in that business. Am running up the Kentucky river next Thursday on a sternwheel boat. I saw the Desplaines river on the 28th
3332 of April, 1908. Went from Joliet down to the mouth. The Desplaines river, according to my judgment, as I saw it, is not a navigable stream for useful purposes of commerce, on account of the swift current and the rocky shoals. I saw it at several different places, I would not say just how many. We went down the river from Joliet to the mouth.
3333 We crossed the river six or seven times on the different bridges and down the banks; where we could see the river most of the way down.

The Ohio river has a navigable stage in extremely low water, we navigated there on as little as 24 inches. Not without a great deal of trouble, however. It has not occurred in the last four years. Up to four years ago, it was most every year, in the fall of the year in extreme low water. It would continue from two to three months. We would find that depth at different sandbars, not the same depth at all the bars. Only at sandbars would we find the shoal water.

3334 The Desplaines river has a rocky bed in some places. Most of the bed of the Ohio river is mud and sand. There is a difference in the navigability of a river with a mud or sandbed at a low stage of water, and the navigability of a stream with a rocky bed at a similar stage of water. It is more difficult to navigate a river with a rocky bed, from the fact that you must have more water on the rocks than the steamboat draws; in the Ohio river where you have sand you can run up on the sand and spar the boat over after several hours' work. You cannot do this on a rocky bedded river because you cannot move the rocks and the sand you can move by spars. There would be a difference in the hazard to the boat in attempting to spar over a rocky shallow and a sandy shallow. You are liable in sparring over rocky shoals to injure the steamboat.

3335 I have done but very little cordelling. I observed the velocity of the Desplaines river and its slopes, and the curves and bends of the banks. Those matters enter into my opinion as to its not being a navigable stream. It is more difficult to navigate a crooked stream in a swift current than it is a straight.

Q. Assuming that a river began at a point of the river 20 miles from its mouth, assuming that there is a fall of 38 feet in the first 4½ miles or 8½ feet per mile; that in the next stretch there is a fall of 21 feet in 3½ miles, with maximum slopes of more than ten feet per mile, containing islands and boulders, some visible and some submerged, with rocky bottom; then next following in the descent of the river there is a pool 5 miles long with no fall, and next following that 9¼ feet a fall in one mile, 9.4 fall in one mile, with maximum slopes of more than 15 feet per mile; as narrow as 100 feet, and having abrupt turns and boulders in the channel; and next following that descending stream a pool one mile long with practically no fall, and next following that a fall of 2.7 feet in one

mile, with maximum slope of about 4 feet per mile, with a rock bottom and boulders; and next following that a fall of 2 feet in 3½ miles, and rapids at the mouth, a fall of 3 feet in a half a mile, with a rocky bottom,—would you say that a river of that description could be navigated by a boat for useful purposes of commerce?

A. Those being the conditions, I do not think it could be navigated.

I would say a river which in 15½ miles had a fall of 38 feet, all of which occurred in stretches aggregating 6½ miles could not be nagivated.

Cross-Examination.

3337 Most of my steamboating has been on the Green and Barren rivers. The Green river is in Kentucky. The portion navigated was 230 miles, Green river proper. Running from a point 9 miles above Evansville, Indiana, to the Mammoth Cave, that would be the Green river proper. Barren river is 200 miles from Evansville. Our regular trade is between Evansville, Indiana, and Bowling Green, Kentucky. We navigated the Ohio river in that trade nine miles, the Green river 170, Barren river 30, making a 209-mile trip from Evansville to Bowling Green. Mammoth
3338 Cave is the head of navigation on the Green river. At the head of navigation it is about 120 feet wide. In low water there is about four feet of water. Green river is locked and dammed. After building Lock No. 6, the first lock below Mammoth Cave gives them four feet of water on
3339 the bar at Mammoth Cave. It is 122 miles on the Green river from where you enter it just at its mouth, up to Mammoth Cave landing. In that district there are six locks and dams; they are not regular. The first pool is 60 miles, the next two, 45, the next is about 20, the next is 13, the next is about 17 or 18 miles. That is the head of navigation. The height of lock to hold the first pool of 60 miles is 14
3340 feet; for the second pool, 45 miles, about the same; the next one, I think, is 17 feet approximately; the fourth one, 14 feet; the fifth one is 13 feet, and the sixth one, 11 feet. These locks bank up the water about 221 miles.
3342 I never navigated the river before these locks and dams were put in. The water from each of these dams back water clear up to the dam above it. I don't know how much water is added by each one of these dams at the point in

the river just below the other dam. The river has a mud bottom, the principal part of it. In some places it has a rocky bottom. There is plenty of water over all the rock shoals. There is no navigation in Green river above Mammoth Cave at any time. After you get above Mammoth Cave landing, you have a deep pool again. Slack water does not extend some distance up the river from there. I do not know how deep the water is in shoal places above there. I do not know how deep the water would be in Green river, if it were not for the dams. The current is greatly reduced in this river by virtue of the dam. In times of high water it would be pretty rapid if it were not for the dams. As I understand it, the object of the dam is to give depth of water.

3344 The navigable length of the Barren river is 30 miles. There is one lock and dam on that river fifteen miles from the mouth. I do not know how deep the river is above slack water. I suppose the average width would be about 100 feet. Where it is navigable it is from 100 to 250 feet. In some places that in the slack water above the dam, we have

3345 shoal places that in low water season is about five feet, four and a half to five feet. I think the dam is about 15 feet deep. The river is about the same depth below the dam. We have what we call there in low water season four and a half feet. The bottom of the river is gravel mostly. The boat we navigated was 120 feet long, 25 to 30 feet across, with a carrying capacity of 200 tons. The same size boat that was used on the Green river on account of the locks. 200 tons of freight can be carried as far as Mammoth

3346 Cave on the Green river. We had four feet in the shallowest place, at Mammoth Cave landing in the Green river.

I navigated the Cumberland river. The Nowlin river is about 15 miles below the Mammoth Cave, it is a branch of the Green river. It is navigable 14 miles up, to Dismal Rock. The water from the dam in Green river below the mouth of this river holds the water up in this river. It was not navigable without that. I suppose that river runs from 75

3347 to 90 feet in width. It holds its depth pretty well all the way up. I suppose there is at least six feet of water all the way up at the shoal places. Some places it is very deep. In the locks there is four and a half feet of water in the miter-sill.

3348 Rough river is a tributary of the Green river and is navigable thirty miles. It is about 90 feet in width.

We have four feet depth of water in Rough river on the miter-sill. They have one lock on that river, eight miles above its mouth. It was not navigable before the locks were put into the Green river and Rough river except in high
3349 stage of water. Green river was not navigable before this improvement. I suppose it would be, taking it all together, two or three months in the year. Before these locks were put in, boats sometimes went up there in very high water. I can't say for how long a period it was navigable yearly. Nolin river was not navigable. It was not safe to navigate that in high water. As to the Barren river, I am not sure as to that. In case of very high water you
3350 could possibly go up there, but you could not call it safe navigation from the fact that the river was narrow and the overhanging timber—

I never cordelled a boat anywhere myself. By sparring is meant: We have on a steamboat what you call a steam capstan out on the head of the boat, and we run our boat down on the sandbar, and then we have big spars, great long timbers and we set the spar over on the side of the boat and put our line on the capstan, and we have a pair of blocks, and the spars canter this way (indicating) and go forward or around. You can get your spar to shove the boat forward or set your spar to shove the boat around as you may want. This
3351 process is used when you get into shoal places, get stuck on the bar. The process consists of making a fixed point with the spar, attaching that to the capstan and then by means of steam on the boat, turn the capstan and push the boat on up by its own power.

3352 I navigated the Cumberland river from its mouth to Nashville, 200 miles. The boat used was about 160 feet long and about 30 to 32 feet beam, tonnage 350 tons. When I was running on the Cumberland, that was before the improvement was made on the harbor shoals and the water got down to 24 inches there at one time. We made only
3353 one trip on that water and she was not carrying that much load. The name of the boat was J. B. Richardson. The year, I think, was 1904. The Government was at work on the river at that time. This boat does not go above Nashville. At Nashville we met boats that navigated above here. They were about the same size and some of them carried about the same tonnage. I don't know how far they went up the river. I never navigated above Nashville. I don't know the depth of the water. I don't think it is as

deep there as where I navigated. Where we navigated on the 24 inches of water we did not have a pound of freight. We were going down stream. We did not bring out anything over the shoals. We had lighters and used lighters over the shoals. What we call lighters are barges that we have in tow, and when we get to the shoal place where there is not enough water for the boat to go over with the freight she has got, we move it from the steamboat onto the
3355 barge, all of it, or as much as is necessary to let the boat over, take the freight over on the barges, and the steamboat over light. We have not done this frequently because it has been very seldom necessary. My principal work was done on the Green river in slack water navigation. I have navigated the Ohio river between Evansville and Cairo and Paducah, at times. I navigated that river down to about two feet of water; that was about four years ago. That has not occurred during the last four years, but prior to
3356 that it occurred nearly every year. From Cairo, Illinois, to Evansville, Indiana, is about 200 miles. I have been up as far as Louisville, Kentucky. Have not found the water lower than two feet. Small boats from 60 to 175 feet long were used on that minimum depth, about 30 feet
3357 beam. Over two feet of water you could not carry over 75 tons on a steamboat. Some boats, if you built them in proper shape, would probably carry a little more; it depends on the depth and breadth and the machinery that you have I know some boats that navigate on that part of the Ohio river—I know nothing much about the upper branches of the upper part of the river. From my standpoint about 2 feet is the minimum depth. The boats I have in mind carry from 150 to 300 tons when loaded. The Government has been doing considerable work on the Ohio river. There has been no dredging done where I have navigated. I know there is work being done on the river by the Government. I
3359 know there is such a thing as the Ohio River Improvement Association and their business is to solicit the general government to improve the Ohio river in various forms. I think they are succeeding in getting some work done.

I went down the Desplaines river on April 28, 1908. Went down in an automobile and crossed the river six or seven times on bridges. I think we must have found six
3361 bridges. Mr. J. W. Woerman was with me and Captain McBride of Louisville. We went down to the mouth of

the river, a place where they had a cofferdam. We did not go down the towpath bank a part of the way, nor through
3362 the Village of Channahon. We were on the left bank when we reached the site of the dam, did not cross the river at that point. Was not over where the work has been done by the defendant company. Was not on the river at any time in a boat during that trip. We got out of the automobile opposite the dam and walked down through the fields, I suppose a mile to a mile and a half I suppose
3363 that was about a quarter of a mile from the river. We looked at it the best we could, could see the river plainly there.

Q. Your highway that you travelled, came down half a mile or more away from the river and you got out opposite to the point of the river that you went to where the dam is, and you walked across from the river to the highway, is that it?

A. Walked down through the field, yes sir. Stayed
3364 on the bank opposite I suppose thirty minutes. Left Joliet at one o'clock and got back there about half past six. Traveled 15 to 18 miles. That is the examination I made of it. At some places the road was half a mile away from the river, at other places not so far. I suppose about half the distance is within a half mile from where we were going along the road.

3365 *Re-direct Examination.*

I think the locks in Green river were completed in 1835. The improvement was made at the same time on the Barren river. We could see the cofferdam on the Desplaines river from the point where we were on the left bank. We were at the aqueduct. We were right down the river bank at the aqueduct. I cannot recall all the bridges we crossed. Jackson street was one, I think, Cass street, Rock Island bridge. I think there is a bridge at the place they call it Brandon's road; that we crossed. At Treat's Island we crossed over on a bridge and came back to the right bank again and there is a bridge below that, Smith's bridge, and the McDonough, that makes seven.

3367 Q. All of them in Joliet, aren't they?

A. It is right hand to remember all of them.

3368 We stopped the automobile on these bridges and viewed the river from these bridges. I don't think we

got out. The Jackson street bridge we did not cross in th automobile; we walked across that bridge, and then returne back to the left bank and walked down to the next bridg and got into the automobile down at the next bridge.

COUNSEL FOR DEFENDANT. Q. Did you ever know of steam boats navigating on such slopes and declivities as the maxi mum slope and declivity that I stated in my question thi morning?

A. Not to my knowledge.

Re-cross Examination.

Q. You don't know whether some of the boats that yo have known have undertaken slopes of that depth or not?

A. I could not say what steamboats have done in som other parts of the country, no steamboats that I have know of or heard of.

My navigation has been mostly on slack water. That i easy navigation.

NATHAN P. PRYOR, called on behalf of defendant, testi fied:

Direct Examination.

3369 My name is Nathan P. Pryor. I am forty-two year old and live at Carrollton, Kentucky. My occupatio is that of steamboat pilot and master. Have been engage in the steamboat business about 28 years. Have held a com mission as pilot 13 years as master 11 years. Have navi gated steamboats as master or pilot on the Kentucky an Ohio rivers between Cincinnati, Ohio, and Evansville, Indi ana, on the Orio river, and the mouth of the Kentucky rive to Irvine, Kentucky, a distance of 271 miles. Have navigate all kinds of boats, propellers and sternwheel boats, and side wheel boats and gasoline boats from 30 feet to 300. Hav had about a year's experience with gasoline boats. The were small flatbottomed scowbowed sternwheel boats, abou 70 feet long by 18; were freight carriers. Have navi 3371 gated boats of this description between Madison, Indi ana, and Monteray, Kentucky, that is 12 miles on th Ohio and 40 on the Kentucky river, in the past year.

Saw Desplaines river on the 17th of this month, between Joliet and the mouth.

Q. In your judgment, and based upon your observation that day, state whether in your opinion the Desplaines river between the points where you saw it is a navigable stream?

A. I saw a very rapid stream obstructed a great deal by bridge piers, islands, and timber and some rock shores, and there were rapids in the river and it would appear to me from my river experience that there were obstructions there. At the time that I saw it it was a high stage of water, and I could not tell what these obstructions were, but there was obstructions of some kind in the river at all these rapid places, that from the indications of the rocks and shores, I would judge there was rock in the middle of the river.

I saw it at its mouth where a dam was being built, at Treat's Island and at Brandon's road. We could not get to Smith's bridge on account of the water.

3373 Q. From your examination of the river, state whether or not in your opinion it is a navigable stream?

3374 A. I don't think it is. It was too swift to navigate a boat of any kind on from the fact that if you were going down stream and had a stop to make anywhere, I am sure it would be impossible to land your boat anywhere. Coming up stream there is no boat within my experience that would stem it. The kind of gasoline boats that I have had any experience with would not start in it. The current is so swift they could not get in the mouth of it. A gasoline boat is not adapted to the navigation of a rapid stream. You cannot put the power on. You put power enough on it to navigate a rapid stream, why then you get too heavy

3375 a draft boat, and they do not develop the power that steam does; they are liable to break down at any time. In case of a break down with a gasoline boat in a current of that kind, you are at the mercy of the current; you have got no control of your boat in such a current as that and if you meet any obstruction of any kind, you would knock a hole in the boat. Gasoline is not a reliable power in the operation of boats, not by any means.

Q. Assuming a stream of the following description: begin at a point twenty miles from its mouth, we find a fall of 38 feet in four and a half miles, considerably more than eight feet per mile; the next stretch of three and a half miles, with a fall of 21 feet, with a maximum slope of more than ten feet per mile; then next following a pool five miles long with

no fall; then next following that pool a stretch one mile in length with a fall of 9.4 feet and maximum slopes of more than 15 feet per mile; then next following a pool one mile long with practically no fall; and next following that pool a stretch of one mile with a fall of 2.7 feet with a maximum slope of about four feet per mile; then next following a fall of two feet in three and a half miles, and then a fall of three feet in a half a mile at the mouth, the bed of the stream being rock; what would you say as to whether or not a stream of that description is navigable.

3376 A. I would not consider it a navigable stream.

At various places in that stretch of the river I should say it was impossible to navigate on account of boulders, rocks and islands.

Q. Could you navigate a stream which has a fall of 38 feet in fifteen and a half miles, which fall is comprised in a stretch aggregating approximately six and one-half to seven miles of the whole fifteen and a half miles?

3378 A. I don't think you could navigate it with any kind of a boat. I observed the curves and bends in the river. In a crooked river you of course have to make very abrupt turns to get around these bends, and your boat naturally takes what we term a flank; you have to hold close up to the points, and in doing so that current is so strong that the stern of your boat will overtake the head, and turn around, and the first thing you know you are turned around going up stream instead of down.

3379 I would not consider it safe at all to navigate where there are abrupt curves coupled with a narrow channel, 100 feet in width and a swift water and rock bottom, the fall at such point being 9.4 feet in one mile and a slope of more than fifteen feet per mile. Have never known of anyone navigating a slope of 15 feet per mile. I have warped boats. Don't believe I could take a boat up the river at Treat's Island by warping.

3379 *Cross-Examination.*

I began the steamboat business when a boy fourteen years old. Since I have been a pilot I have been on Kentucky and Ohio rivers, before that I was on the Mississippi river some. The Kentucky river has been improved by the Govern-

3381 ment. I navigated 210 miles instead of 271 miles. That takes it from its mouth to the head of slack water navi-

gation at Irvine, Kentucky. There are eleven locks and dams up there in 210 miles. The two that are farthest apart are 26 miles. The two closest together, twelve miles. The water is backed up from one dam clear up to the other. It was navigable in a way before this improvement. As far back as I can remember when I first started at the age of about 14 years, the locks and dams were broken out. They were originally built by the State, and the Government took charge of the river in 1880, repaired these old dams, and built some new locks and dams, and when I first started, we went through the breaks in these dams, and in the summer when the river would get low, the boats would have to lay up and quit. Whether it was navigable before the State put these dams in or not, I could not say. Prior to the time the general
3382 government fixed it and after the breaks occurred in the original dams, they were navigable with a small boat towing a barge perhaps six months in the year. It got down to a stage where there was not over 18 inches of water on the shoal places. The boat quit on about two feet. Had one barge to carry freight on, the boat itself was too heavy. She was about 75 feet long and 18 feet wide. She would not
3383 carry over 30 or 40 tons. Her only means of carrying freight was by a tow on a barge. Tobacco was the principal freight. The barge would carry 40 or 50 tons outside of the cask, which would be some five or six tons more. Have navigated the Ohio from Cincinnati to Evansville, about 350 miles. All classes of boats from a small boat to a long boat of 300 feet. The 300-foot boat would carry 1,200 tons. From that they have them down to pleasure boats, which do not register any tonnage. The smallest boat that I have ever seen navigated there would possibly carry 60 or 70 tons. They are about 110 feet long, 20 feet wide. When fully loaded they draw about three and a half feet, with about sixty or seventy tons. When half loaded they could not go in less than two feet. They don't operate those boats at times over shoals to that extent with less than two feet of water. I never saw a boat operated on 16 or 18 inches of water, loaded or unloaded. I never heard of it. You cannot operate a boat 110 to 120 feet long, loaded, on 18 inches of water. I never saw it done. Don't think it can be. They would draw light
3384 18 inches or more. Loaded with 60 or 70 tons, about
3387 three or three and a half feet. Half loaded, something over two feet. About thirty inches, perhaps not quite so much. The Kentucky river has no navigable branches.

The Kentucky river is the only side stream of the Ohio that I have ever navigated. There are times of the year when it is much beyond a slack water navigation. One dam backs water to the other one, that is what is meant by slack water navigation. That is true all the way up the Kentucky only at certain seasons. When the water is not very low it
3388 will give you a current from the mouth. There are times of the year when there is no slack water in the Kentucky river at all, a good portion of the year. I mean that the dams are entirely covered and we very often run right over the top of them. The dams are from twelve to twenty feet high, the lowest twelve, the highest twenty. The water would be practically level on top of the dam. There is often water enough on top of the dam that a boat goes over it, but it is too swift, you could not push her. You go through the lock on those conditions. We occasionally run over the top of the dam. If we find for instance, a boat draw-
3389 ing four feet of water and there is five feet on top of the dam and it is practically level, we go over it. We come down stream over those dams very often when we cannot go up stream because the current is too swift. Sometimes there is a fall at the dam, sometimes not. For instance, we take Number One Dam, which is four miles above the mouth of the river, and it is very often there isn't but six inches of water on top of that dam and it is backed up
3390 from the Ohio. Of course, that is slack water and they can go over without any trouble. If we had water enough to furnish a full level, we would go, but sometimes the river rises or falls, and there are greater falls at one time than there is at another. For instance, the water falls two feet below the dam, while it falls one foot above it, and it raises the same way.

When the water is very high in the Kentucky river and you start your boat up at the upper end of navigation and go right down over the dam, there would be enough water so that
3391 there is no fall. The number of feet is uncertain. One can easily go over a dam when he has a foot fall. You might have four or five feet on top of the dam. It is not any risk to go over a drop of a foot, and it is not an abrupt fall of one foot. It is a fall of a foot perhaps in 100 to 400 feet. I have gone down when it was a considerable fall down stream but not up stream. I absolutely never put my boat over a dam when the fall was anywhere from one to three in the length of the boat. I cannot say whether I have gone over

where the fall was two feet in four hundred feet. We don't take any gauge of the boat at all, only that we know there is water enough on top of the dam to float the boat. I won't deny that I have gone down there when the fall was two feet in four hundred.

3393 I was down to see the Desplaines river on the 17th of this month, at the instance of the defendant, for the express purpose of examining it and being a witness.

3394 My home is at Carrollton, Kentucky. I went by rail to Joliet and from there by automobile. J. W. Woerman was with me and the man who operated the machine. We went down the right hand side of the river all the way down. We crossed a number of bridges, but came back. I don't remember being at Channahon. We were at the

3395 site of the proposed dam. We were on the side of the river next to the canal, the right hand shore. We went from a point near the mouth up to Mr. Woerman's office. Never went as far as a mile on the towpath. We walked about a mile from where we left our machine to get down there. We were not along the bank at that time. We crossed about eight different bridges. In Joliet, there was Jackson street, Cass street, Jefferson street and I believe there was the Burlington Railroad. I would not remember whether Brandon's road is on a bridge or not. Then we went to the bridge below Treat's Island. Then we started to see Smith's bridge but did not get to it on account of the water.

3396 I saw enough of the river to have an intelligent understanding of it. The depth of the river I know from what they told me and my own judgment. I had never seen it. Of course, I had to take the other man's word for it. I cannot say positively how rapid the currents are. I was told the fall per mile but not the current. I don't know that I could in a scientific way compute the current or the rate of current from the fall of the river. I don't know how often I have heard the

3399 names of the streets I mentioned in Joliet. I talked pretty freely with Mr. Woerman all the way down and back. I was present in the room when the last witness, Captain Bewley, was being examined. The gasoline boats I mentioned ran from Madison, Indiana, to Monterey, Kentucky, 12 miles on the Ohio and 40 miles on the Kentucky. They carried about 15 or 20 tons. One of them is 65 feet long, 16 feet wide, 4½ feet deep; the other 70 feet long, 18 feet wide and 3½ feet deep. That is the depth of the hold

of the boat. A boat 70 feet long, by 18 feet wide, possibly could navigate on about two feet of water. The other boat would draw more water. They would carry about the same tonnage. I operated these boats at different times about a year. They ran both in the winter and summer, as regular freight carriers. They carried tobacco, poultry and eggs and wheat and passengers, miscellaneous freight.

I understand what is meant by cordelling. I never did any cordelling. The other name you apply to a boat when you push it over is warping, that is, sparring. I have used that method. That is where you ground in shallow water. Sometimes you lift the boat up and sometimes you push it over. If you want to lift, you ought to have two spars, one on either side, and set those spars straight in the water, resting on the bottom of the river on each side of the
3402 boat, and have a block and tackle from the top of the spar that runs down through a block on the deck of your boat, and take this line around the capstan, and you lift the head of your boat up off the bottom, and then to move it they will take a yawl or lifeboat and run ashore and make a line fast and take it around the capstan and trip those spars. That makes the boat jump ahead. All large boats that operate on the Kentucky and Ohio rivers carry spars ready for this kind of emergency. The gasoline boats do not. I never knew one to need them. The gasoline boats are sternwheel. I understand what is meant by warping a boat. I have had to do that in my work. I never warped a steamboat or gasoline boat. I have warped a
3403 barge. To warp a barge, you put a line out to the shore, to a tree or anything that will hold, and then you bring your line back to your boat and run it through a block or pulley of some kind, and on to a line that runs fore and aft on your boat from a given point, a point ahead of the boat to the point forward of the stern. Attach a line to that and take it to a windlass and pull up by it. Sometimes they do away with the sideline and push over with poles. Whenever we have a steamboat and a barge together we never warp. It is only when we have a barge alone. There is no power. Warping is nothing but an ordinary line that you carry all the time, and you can rig up a windlass by hand. The towboats never have to warp. When the river gets down to that stage, all the towboats quit.
3404 It is very seldom that towboats quit on the Kentucky river and on the Ohio it is irregular. They have been

running pretty steadily for the past four years. They have simply had more water. Up to four years ago, the towboats and their fleets would have to lie up and wait for weeks at a time before they could take them down the river. They generally waited about Pittsburgh or at points below there. They arranged their work so that they could get their boats all back to that point before the low water comes. Sometimes it is months. They use a few gasoline boats around Madison, Indiana, for towing light barges. They do not push much. On those light barges they carry wheat and posts.

3405 *Re-direct Examination.*

When I say do I not know the current of the Desplaines river, I mean that I do not know the velocity of it, how many miles it runs. I observed the current of the river from quite a distance along the road. On a rock bottom stream, they never sparred boats as I mentioned. They sometimes push them over one way or other, where they know the bottom is level. I have not seen gasoline boats used for commercial purposes smaller than those mentioned.

3406 THOMAS AUSTIN MILLS, called as a witness for defendant, testified:

My name is Thomas Austin Mills. I live in Will County, Illinois, have lived there 57 years. Born there in 1850. Have lived those years in Township of Channahon, right east of Treat's Island, about 20 rods from the Desplaines river. I think my father came there in 1848 or 1849. He owned and cultivated some farm land there. Treat's Island was a part of the property that my father owned at the time I was born. I think my father died June, 1853. My uncle operated the farm after that. I am a farmer. I farmed the same land my father did at Treat's Island. A few weeks ago I sold the island. I owned it ever since my father died and it has been cultivated all that time. Raised wheat and corn. There is about 74 acres in the island, 65 of it belonged to me, and it is about a mile long. I remember at one time of there being a dam and a mill on Treat's Island. The mill was running quite a number of years, when I was a boy. It was just below where the road is now; it was on the island. On the east channel

of the river. The dam was near the upper end of the
3490 island. On the west channel the dam was a little further down. The dam was about 80 rods above the mill on the east channel. (Witness indicates on map (Zarley Exhibit 1, see Appendix, page .....) the location of dam at the head of island.) The left hand channel going down stream is the east channel. The dam across the west channel was from Treat's Island, about where the mill race crosses Treat's Island. I am living there
3411 still. I am cultivating the farm not on the east side of the river but back from the river. The mill was right at the point where the mill race empties into the east channel and the dam was about 80 rods above that. I recall the dams and the mill ever since I can remember anything. It was a saw mill and it was in operation when I was a boy. The
3412 dam across the east channel did not effectively block the stream at that point. I think the mill was operated up to just before the war, about '58 or '59. The dams remained there for quite a long while thereafter, probably three or four years. The mill ceased because there was not any more timber for sawing. They got timber from the country round about there. In 1871 when the Deep Cut was made connecting the river with Lake Michigan, the water was low most of the time in the spring of the year. We most always had a freshet. We had high water in the spring and very low water all winter. The freshets would not last a month
3414 or so. After them the river kept going down gradually. If it was a dry summer there would not be much water in it the latter part of the summer. There were places where there would not be over three or four inches of water. On either side of the channel, I have walked across there many a time without getting my feet wet, stepping from one stone to another. We never had any freshets to interfere with putting in the crop, and we generally had our corn planted in May. The high water season was here then. From that time there was very little water in the river. Sometimes there would be a heavy rain in the summer that would raise
3415 it and it would go down again in a few days. With the exception of these occasional freshets lasting for a few days, the general condition of the water during the entire summer season was that there was about five or six inches of water. The river had a fence across it, just above the mill race, on the east channel, as long as I can remember, up until about 1871 and we got high water there and they did not build

the fence any more. It was usually a post and rail fence. I maintained it prior to 1871. The fence would remain there from spring until spring, unless we had high water. Generally when the ice went out in the spring it would take the fence with it, and then we would build it up again after the water went down. It had to be renewed every spring after high water and it would remain until the next spring, unless we had high water. I have built it a good many times.

3417 The bed of the stream is rocky. There are boulders in it, granite boulders, four or five feet across. Quite a number not as large as that, but there are very numerous smaller ones. There were boulders all the way up from the upper end of the island down to the lower end of the island. They were here and there, scattered along all through the channel, on both sides of the island. They would be exposed six or eight months in the year. There were not so very many large ones, but the ordinary size boulder as large as a foot or two in diameter. There were plenty of those. I have walked across the stream a good many times and stepped

3419 from one boulder to another and did not get my feet wet. I could do that in the winter time and in the summer time. The cattle did not cross over the island, we had a fence around the island. They could get across anywhere. I think the first bridge was built over to the island in 1894. Before that, we had to ford it. We drove right across with teams and farm implements. Sometimes the water would be a foot or two deep and sometimes not so deep as that. I have seen the water on the riffles on a place there where it was not

3420 over four or five inches in depth. The riffles are where it is scooping out, and then it would be high and the water runs over there and below that there would be a big pool. There were pools and riffles all the way down the length of the island. I do not believe there was a month of the year that some of the boulders would not be exposed.

A good deal of the time you could get up and over the riffles on Treat's Island with a skiff but you would have to get out and pull the boat over the riffles. What I call the riffles are little places where the stones are washed up and the water is shallow and below that there would be a little deeper water, but you would have to pull your boat up there for a long ways. I have had to pull boats up there where I had to pull,—about ten or twelve rods at a time. Then there would be a pool 60 or 100 rods long, in the east channel. Below that

there was another stretch of riffles; I don't know how
3422 long, about 20 or 30 rods. I used to get out and wade and pull the boat over. The west channel is about the same, only there are not as many of these riffles as in the east channel. The riffles extended just a little way below the island. When the water was deep you could take a skiff up there; that would be in the spring of the year. Some-
3423 times in the summer after we happened to have a heavy rain in the spring, you could float a boat without dragging it, for about a month or so. It would begin generally in March and April. That would be the only time in the year unless it rained. When we had summer freshets, it
3424 would last a week or so. I have used the river with a rowboat, since 1871. I have not been up or down over the riffles on Treat's Island since 1871. The current is too rapid there now. It has been so rapid that you could not navigate a rowboat since 1900. The current has been swifter because the Sanitary District has turned more water in there. A rowboat has been taken up through either of these channels, but I never did it. I don't want to try it. Comparing the condition of the stream with the condition before 1871, we would consider it a flood right now. We very seldom got headwater as high as it is now. We called it high water.
3425 The banks were not flooded. If the water was as high now as it used to be, we considered it high water. Of course, once in a while it would get up on the land on the island. I never saw the island covered with water but once and that was prior to 1871; it was in 1865.

The effect of opening of the Deep Cut in 1871 was that there was very much more water coming through and it had the effect of covering the lower land and washing out the channel. The channel was considerably wider than it was. The current was more rapid. After 1871 up to 1900 the current was not as rapid in the summer time. In the spring of the year it would be, but in the summer time there was grass that grew up in the bed of the river and sort of dammed the water back, and it did not flow as rapidly, but when the channel was cleared it was pretty rapid.

3426 My house was about 20 rods from the river. I could see the river every time I was outside the house. I crossed it almost every day, two or three times. We had our crops over there. We had to farm them and get them out in the fall. Going to school for three years I crossed there during the summer time, from March until it got cold weather

in October. The school was at Channahon about three and a half miles on the other side of the river. We got our
3427 family supplies at Channahon sometimes from Joliet and Wilmington. I had occasion to go to Channahon for supplies when a boy. I forded the river, drove across with the team. I have walked across. I never knew of any navigation on Desplaines river; never knew of any boat having been taken up or down stream or carried down stream, carrying on any kind of commerce. I know there could not any boat of any size be taken up that river at any time during my lifetime, and not now either.

3428 I am familiar with the river below Treat's Island. I have crossed the river at Brandon's bridge. Have seen it nearly every week. I have seen the river near Brandon's bridge before 1871, perhaps once a month. I saw the river below Treat's Island before 1871. There were some boulders below Treat's Island. I crossed at just about where the Smith bridge is now, perhaps 20 rods above it. There was a stretch of riffles there, and quite a good many boulders.
3430 The boulders are not exposed now, they were at that time. They were exposed in the summer season. That was at Smith's bridge. There were a good many boulders all the way between there and Joliet. At Brandon's road I think there was a drop there of a quarter of a mile. I have been down the river as far as the mouth a few times. The boulders in the stretch I have described were scattered, some of them were out in the middle and some near the sides. I have had to get out and shove over the boulders lots of times.

3432 The place where my house is is called Millsdale. There is a bridge crossing the Desplaines river there. There used to be a ford right opposite the houses, just above
3433 one of those riffles, we called them riffles. The riffles were pretty rapid; there were several large boulders in there so we used to go above those boulders and when the river was high, we generally had a mark, we could tell
3434 when a certain boulder was covered with water it was not safe to cross. This ford was about 80 to 100 rods down the river below the head of Treat's Island, and there was riffles all the way up; there would be a riffle, and then there would be a little place where the water would be deep. The water in this ford during the summer season was about a foot or so deep. It would be deeper in the ford than it would be on the riffles. It was not deep enough to do

any harm; you could drive clear through there because it was smoother. Some of these boulders along Treat's Island would weigh about a ton or more, two or three feet high. There
3435 was a boulder above that ford that is five or six feet across the top and I presume it was three or four feet high; it was near the center of the channel. On the east channel there is two different places that I have crossed by stepping from boulder to boulder, one just below this ford, and the other one at about probably 50 rods up the river. I never did cross below the rapids that way. Have seen the Desplaines river near its mouth many times. Since the Santa Fe railroad was built in 1884 or 1885, I have been up over that road 25 or thirty times a year. I have seen the
3436 river when there was not any water in it scarcely at all. In front of the depot at Lemont is a solid rock bottom, and I have seen it there when the water did not scarcely run. I don't suppose there was two or three inches of water
3437 there. I have seen it in that condition a good many times, generally in the summer. When we have a freshet, it would take some little time for it to run down. There at my place you could ford the river in two or three days after a freshet. Prior to 1900 I have never known of a week that I could not ford the river.

Cross-Examination.

I lived on the place all my life. Was in Chicago two or three years but was back and forth all the time. Channahon is a little river town on DuPage river. I don't think there is over 100 people there. The school I attended was a high school; went there about three years, commencing in the
3439 fall of '68. I remember Grant running for the presidency in 1868; remember when Grant took Richmond. I distinctly remember when my father died. I was about three or four years old. I remember the old saw mill and I remember riding on the carriage that carried the logs. The logs were on the bank and they rolled them in and were put on what I called a carriage, it was an up and down saw and carried the logs against the saw. I don't remember how long the mill was, it was a wooden one story affair. There was a slope so they could roll the logs down onto the carriage. The dam was built of logs, a log placed here and there and then slabs put back and stones piled up on the bottom of

those slabs. I don't imagine the dam was over three
3442 or four feet high. They used some of those boulders.
I have seen the water pour over the top of the dam; it is quite common in the spring time. The water would not stand in a pool behind the dam; there was too much fall. Above the dam was Lake Joliet. The water behind the dam would be held back four feet deep. That dam was across the east channel, and there was another one across the west channel and a little farther down. One of those dams between
the main island and the little island, a small part of it,
3444 was built in that same way, and the balance of it was
just boulders in there. The dam between the small island and the large island, started at just about where this millrace starts in. It must be four or five rods below the end of the island. The center of the dam was a little further
down stream than the two ends. (Witness indicates on
3446 map the location of dam.) There is a strip of land between this millrace and the river, I should judge about three or four yards wide, and the river is so much wider now because there is a good deal of it washed away. I can show
you where the old millrace was if I should go down
3447 there. There was a dam right here near where they
run that grist mill. I don't know whether they had any dam on the other side or not, I should judge perhaps they did not. (Witness indicates on map location of grist mill and dam.) The grist mill was a much older mill than the saw mill. I don't remember anything about the grist mill only the ruins and the mill stone I have seen. If I saw a statement in Woodruff's History of Will County that in 1837 there was a grist mill on the east side of Treat's Island, I would take it to refer to this mill. I don't think it was washed out. I think it went into disuse and tumbled down
and perhaps it was carried away; I don't know. It was
3449 all gone before I came upon the scene. The dam was
not entirely obliterated; there was a part of it left there. There were some boulders all along there.

Q. You spoke of this first dam being in three sections, one across the east, and then one across the middle, and then across the west channel.

A. Yes, sir. But I didn't speak about this little millrace that ran down to the grist mill. Of course, they had the dam there too.

The dams across the east and across the west channel were made by laying some logs crosswise of the stream and putting

slabs behind these, then piling the boulders on the slabs. In the middle it was made by simply gathering the boulders together, a portion of them. The water would work its way through the middle channel some. The millrace was artificially made by digging out the ground, probably twenty
3451 or thirty feet wide. I saw the water run in there bank full and run over on each side. When the water run over the top of the dam, if the dam was four feet high, of course it would be four feet behind. There was a good deal of the time when it didn't run over it, only in high water. And then there would be considerable time when it would stand about level with the top of the dam; it would run over the top of the dam only for a short time. When it ceased
3453 to run over the top of the dam, the water would not stand full to the top of the dam. There was a great deal of water seeped through; the dam was not very tight. It was not well built as they build dams now. What you call a mill pond is Lake Joliet; some places in Lake Joliet there was twenty feet of water. The object of the dam was to raise the water enough so they could run water through this mill race to run the mill.

The bridge marked on the map near my house is an iron bridge with a stone abutment at each end. It was put in, I think, in 1895. My house is 30 or 40 rods from the Millville Station. I never carried on the mill. I don't think they
3455 run that mill later than 1859 or 1860. I don't remember that the dam was washed out and that they replaced it more than once before they stopped running the mill. It was not washed out at once; I think it was washed out gradually. I didn't see them building any dam. I presume it was by gathering boulders together.

3456 My business has been stock raising, farming, and I was in the tile business a few years, manufacturing tile at Millsville. I employed about eight or ten men making drain tile, commenced about 1883, stopped somewhere about 1885. My main business was farming.

3458 I made a contract to sell the island to Mr. Charles E. Munroe, March 5, 1904. Upon his paying the purchase price within four years he was to have the property; he did that and I transferred the property to him a few weeks ago, or to the Economy Light & Power Company, the defendants. I came up to testify at their request. Don't think I ever talked about the dams until just the last day or two. Don't think I have any talk with Mr. Munroe about the river, even

until just recently. I don't know the horse power of the sawmill. I don't know what kinds of a mill it was. It must have been a sort of a turbine wheel. The wheel was down
3460 in under the mill, and I think a vertical shaft went down from the mill into the wheel pit. I think the mill was there before my father was interested in the place. There was a good portion of the year when there was not water enough to run it; in the winter time and only a little while in the spring, I guess, they could run it.

To build the fences described, we took rails and flattened off the ends and drove the posts down in the bed of the river
3461 and spiked those rails on to those posts, the same as you would a board fence, only using the rails instead of boards. The ice would carry the fences out and they would put in new ones.

In the west channel I have crossed by stepping on boulders at a point just a few feet below the bridge. (Witness indicates point on map.) I have also crossed it just above
3462 the bridge. There was a ford right here where the road comes down to the river, but it went out on the other side below the bridge. The ford was smoother than on either side where the boulders were. There were small boulders all the way up the stream to the upper end of the little island; above that, it begins to get deep, and I have waded up there, 20 or 30 rods, and there was not more than a foot or 18 inches of water, sometimes in the summer. I never went in up at
3464 the upper end of Treat's Island, it was too deep. I never learned to swim. Up above Treat's Island there was about 22 inches of water. There were boulders all along the channel of that river, as far as I have ever been, and I have been wading up and down that river from the upper end of the island to the lower end. On both channels, it is just the same.

3466 I do not know personally that there were boulders in the west channel above the upper end of the little island because the water was too deep. I didn't hunt for them. (Witness marked on map location of boulders "K-prime.")
3469 There were boulders down 12 or 15 rods below the end of the island, below the rapids, until you came to deep water. Then there is a stretch of deep water there for a mile or more with boulders all the way down to that deep water, and I presume there are boulders in there. I refer to the same thing by the words, rapids, ripples and riffles. I would call it a riffle or a rapid where the water drops and

goes down pretty rapid, and then it will come to a little place where there will be a little pool, the water will be deeper, maybe three or four feet of water there, for just a little ways; then you will find another raise in the ground and the water runs over that rapids, runs down still a little lower. There is a fall, as I understand it, of about eight feet between the upper end of this island and the lower end, so that it is not all in one place. It gradually drops, and near the upper end is more of a drop than there is over this point here from below, where the old mill was, to almost the lower end of the island. There is not very much of a drop there.

3472 A little ways below the saw mill it did not run there. There was a gradual flow and there were no riffles there. Then when you get down almost to the lower end of the island, 20 or 25 rods above the point of the island, it begins to drop again and the water runs very rapid there till you get about that distance below the island.

3473 At the upper end of the island, from where the old dam was there is quite an incline to down about just below the grist mill. I didn't say I crossed those old boulders at the old dam, I crossed it right in here somewhere (indicating). About that point I have crossed there dry shod, stepping from one stone to another. There were not great big boulders. If there were places between it that I could not step, I would stoop down and pick up a stone and throw it down there and make a step. You could move the stones into stepping stones. I have crossed there perhaps 50 times in my lifetime. When there was not a stone near enough, I would roll one up from the channel into the place, so as to make a passage, and when I crossed again if there was a gap, I would roll another. I presume other people did the same. In the ripples at the other end of the island, the drop begins near the upper end, since the dam is out it is rapid all the way down. After you get to a point where the old dam was, it begins to be more rapid, more of a fall, and the water comes down there faster than you can walk, all the way down. (Witness indicates on map where riffles in east

3477 channel begin.) You might call it a riffle all the way down. The water will go down there and then there will be a little quiet spot and then it will go again. When you get to this ripple, twenty rods above the bridge, that continues just below the bridge. There is where the little pool is, from about a point say twenty rods above the bridge, down to just a little below it, the water would not run as rapid,

and from that point on down below the ford, twenty or thirty rods more there is another rapid place, quite a drop there. Then from that point on down to near the lower end there is not very much fall.

3478 The ripples on the west channel commence at the upper end of the little island and it is all the way down to the bridge, below the bridge, about fifteen or twenty rods. It is not so rapid then until you get down to near the lower end of the island, then there is a drop. The ripple on the west channel as it passes the extreme tip of the lower end of the island merges in with the ripple from the east side, and

3479 they both run out together, about fifteen rods below the point of the island; then there is quiet water from there on down. The water overflowed the whole of Treat's Island in 1865. I do not remember how it was in 1867. When the deep cut came down there used to be boulders exposed in the winter time. Since the opening of the Sanitary District in 1900 there is one boulder that is exposed every once in a while, that is about where the old mill race was. I think I have seen that boulder exposed since they shut off the water. When the water goes down to its normal condition, the same as it is flowing every day, sometimes there is more water one day than there is another, then I can see the boulder.

3481 Millsville is a station on my farm on the Santa Fe. I see the river at Lemont from where the railroad crosses. I never made any further examination.

Re-direct Examination.

3483 I closed the sale of Treat's Island to the Economy Light & Power Company in March, 1908. I don't remember when I first talked to anybody with a view of testifying in this case. Mr. Kercheval came down to my place just a few weeks ago and asked me to come up here. I think it was after I had closed the sale. It was about the time this trial commenced. Nothing was said before the sale was closed about my being a witness. I could get a good view of Desplaines river from the car window at Lemont. The river is right up to the embankment. The railroad runs right alongside of the river. Before the Sanitary District diverted the course of the river it came right up by the depot. I should judge the railroad run alongside of the river nearly half a mile. In looking out of the car window I was not able to see much of the water; it wasn't there. I could see the

whole width of the river for about half a mile, perhaps not so far; I couldn't see any water except just in little places. I didn't see any running water.

JAMES CORNELIUS, a witness called on behalf of defendant, testified:

3485 My name is James Cornelius, live in Village of Wilmington at present, on the Alton road. Have lived there since two years last January. Lived on a farm in the town of Channahon in the southwest corner all my life before that. Came there when I was 3 years old. I am 63 now. That farm is right on the south bank of the Desplaines river, I should say about a mile and a half or two miles above the mouth. Two and a half or three miles northeast from the township line.

I knew of a dam across the river near its mouth at the place called Dresden Heights. I should judge it was about twenty rods below the county line, in the Desplaines river. About a quarter of a mile above the mouth of Desplaines river. I saw it first when I was a small boy, eight or ten years old. There used to be a saw mill there at that dam. There is some of it there yet; it has been washed out by degrees. I think there was a saw mill there when I first saw it. If I recall right, it was sawing lumber when I first saw it. I suppose it was a wooden dam. It stretched clear across the river, probably two and a half or three feet high. It remained there about fifteen years after I first saw it.

3488 I have had occasion to observe the condition of the river all along time and time again, from the mouth up, ever since I moved there. I am speaking of the river near its mouth. We used to cross it below this dam, used to ford it prior to 1871. There were boulders all through it at what we call the bend, Dead Man's Hole, below the dam. The boulders extended probably twenty rods along the drift, what they call the rapids, from the dam down. There was deep water there above the dam. There were no boulders exposed above the dam. If I recollect right, the boulders were scattered all the way down below the dam, about twenty or thirty rods. They ran, I guess, from 6 inches to 2 feet, some of them, in diameter, through. Some of them maybe more. There were quite a few. They were scattered through

the channel. You would have to dodge around those
3491 boulders with a skiff. You could see the river from our house. Never saw boats, except rowboats, going up and down. Never heard of any boats carrying any kind of commerce or produce going up and down. Nothing but some trapper, setting traps, or something like that. That would be a common rowboat. It would be going up and down, both.

Cross-Examination.

3495 I have been living at Channahon and farming from 1848 to 1906. The dam was about two miles from where I lived. I never got out and climbed on what was left of the old dam. There was a ruin of an old mill on the other side of the river. I never saw it in operation. I was in the room when Mr. Mills described the construction of the dam at Treat's Island and heard him describe it. I think this dam was put in in the same way as the other, with slabs put on it, and scraped up underneath, and put on top. The water used to pour over the remnant of the dam most of the time; in low water it used to go down in what we call the tail race. The dam was gradually washed away until just the riffles were left. The washing away began as far back as I can remember. It was substantilly all out fifteen years after I first saw it. This Dead Man's Hole was kind of a whirl hole, I never was in it. They used to swim in the aqueduct. There used to be an aqueduct in the feeder. The water there was 4½ to 5 feet deep. I never knew them to go swimming in the river, the aqueduct was too handy. I learned from my father that the boards in the floor of the house were made at the old mill. I recall helping him to draw lumber from there when I was a boy. I think the house was built the same spring we moved, when I was three years old. Afterwards we hauled lumber for the fence; that was when I rode with him, maybe five or six years after.

Re-direct Examination.

3499 I do not recall the boys swimming in the river below the old dam. I don't think there was water enough to cover them part of the time, without they would go in these holes, like Dead Man's Hole. I have forded the rapids above there when it was just sifting through the boulders down around the rapids. Scarcely any water at all, and then

I forded it when it was deep in case of rain. After the spring freshets the usual condition of the river was kind of riffly. In some places it would run through a little crevice, just sifting down; that would be, I should judge, say twenty rods above the dam.

JEREMIAH COLLINS, a witness for the defendant, testified as follows:

3529 My name is Jeremiah Collins. I live in Grundy County,—will soon be 88 years old. I came from Albany County, New York, in 1834, to Grundy County, came by water to Chicago and by wagon from there. There was no other method of getting down there that I knew of. We crossed the Desplaines in coming. There were no boats run-
3530 ning down the river at that time that I heard of. I have lived on a farm ever since I came to Grundy County. We used to go up to Chicago by ox team, and with horses, before the canal was opened. I live in Town 34, Range 7 of Section 13. I am about five miles from the Illinois river, and over six to the Desplaines. If my memory serves me right, there was some of our neighbors went up to the mouth of the Desplaines river when we first settled in Grundy
3532 County; what makes me recollect it is the big weeds that hung over this way (indicating) and we drove right under.

There were no buildings near the mouth of the Desplaines when we first came there, nor any settlements between there and Chicago. I have never seen any warehouse situated near the mouth of the Desplaines, nor never heard of any. We used to go up there with our cattle and feed them in the fall of the year on blue grass, I never noticed the mouth of
3533 the river particularly. I could ride across the mouth of the river there most any place. I never knew or heard of the river being navigated. Mr. Treat had a mill at Treat's Island, there was water power there. That is the only thing I know the river was used for. I knew
3534 Johnny Beard. He built a dam and saw mill about 1836 or 1837. I do not know whether the dam was there after they built the aqueduct or not. That was built in 1848.

3536 I knew Henry Fish,—he had a store where they built the locks at the Aux Sable. I do not know any way

that he could have got his supplies except by team. I never heard of his getting supplies by boat down the Desplaines before the canal was built. I never heard of anything of that kind. I never heard of there being a corner on salt. We got our salt from Chicago by team. I never heard of any salt being brought down the Desplaines on boats. The farmers who settled the country below me on the Illinois river went to Chicago with their produce in teams. I never heard of any farmer taking his produce up the river in boats.

3537 I never heard of a man named John Hamlin having a warehouse at the mouth of the Desplaines for storing goods to be shipped up the river by boats. I don't believe it would have been possible for a warehouse to have been there since 1834, or I would have seen it. I remember when the Jessups built a house on the DuPage river. I do not know where they got the lumber to build their house,

3538 unless they got it from the saw mill on the DuPage. That mill was right south of where the bridge crosses the DuPage now. A man named Will Campbell, I believe, from Ottawa, built the mill, and Treat built the dam. It was probably a mile from where they built the house.

3539 I have never seen any navigation on the Illinois river along where my farm was, nor heard of any above Ottawa. I don't think there could have been any without my knowing it.

Cross-Examination.

3540 I have not sold any land to the Economy Light & Power Company, I don't live within five miles of them.

CYRUS COPELANTZ, called on behalf of defendant, testified:

Direct Examination.

3678 My name is Cyrus Copelantz. I live in Joliet. Have lived there since 1866; from '54 to '66 I lived five miles southwest from Joliet on the east side of the river. Came to Will County in 1854 when ten years old. Lived on farm two and a half or three miles from Desplaines river. In 1866 went into butchering business in Joliet. Was in the

3679 livery business in 1880-1884. In the boot and shoe business from 1880 to 1884. Moved to Kansas City in 1884,

back in 1891. Lived in Joliet since. From 1854 to 1871,
3680 I was along and across the Desplaines river at various times, often. Possibly every week or two weeks from '54 to '66 but from '66 to '80 and since, except when in Missouri, have been along the river almost every week. Am acquainted with it from Channahon, that is ten miles below Joliet, up to Romeo, above Joliet. Have seen the river below Channahon, but not very frequently. In the years prior
3681 to 1871 the condition of the river would depend on the rainfall. In the spring there would be water flowing all the while up until along the last of May, and as the summer season came on, the water would diminish in quantity until in places there would not be any to speak of. Other low places, there would be water the year around in holes. From the last of May to the first of November there would be water in places and in places it would not be dry, but there would be no water to speak of. There would be no run-
3682 ning water seeping along in places. The bottom of the river varies and is not level. There is a space at Treat's Island from that on north up the lower end of what is called Lake Joliet, there is riffles there that would not have much water there, and then after we got to the north end of Lake Joliet, up near Brandon's bridge, up to what has been called Adam's Dam, it is riffles, and there is no water to speak of at all. You can walk across any time. I am acquainted with the riffles; they extended from Adam's Dam south down towards Lake Joliet, about a mile; in those riffles were boulders which varied in size, some three feet through, some two feet, and so on. They were numerous. Also down at the lower riffles at Treat's Island. On the riffles from
3683 Adam's Dam to the head of Treat's Island, in the years before '71, there would not be water to speak of at times there. The average condition along that riffle in a dry season or an ordinary season there was no time that the water was so extensive but what you could walk right across it without getting your feet wet, on the stones. Some seasons it was that way during practically the entire summer season. In the ordinary season, that is, an ordinary rainfall, the water would vary, when the rains would come; there was no time but what you could get across there without any trouble. There was enough water along that riffle to
3684 float a skiff in the spring of the year, after the freshets, but not that I know of during the remainder of the year. I could not tell you just exactly how many boulders

were there, but I know they were very numerous. A fellow would be in danger, if the water was high enough for him to go down with a skiff, in getting by them. I know some fellows tried it. There was a friend of mine and his boy tried it and he ran into one and upset his boat. I was at his funeral.

There is a riffle down near Treat's Island, that is at
3685 the south end of Lake Joliet. They were not so rapid, the fall is not so great as they are at the north end. I should judge they were from a half a mile to three-quarters of a mile in length; say half a mile. I did not see those as often prior to 1871 as I did at the north end. I have been there when there was no water to speak of at all, and walked right across just above there, and again when there was
3686 a little more water; it varied. The quantity of water would be about the same as it would be at the north end. I never saw enough water along those rapids at any time after the spring freshets when it would be possible to float a skiff. There were boulders along there so numerous a person could not go down with safety when the water is high enough to float a boat without being in danger. They are all over the channel. I never saw a boat there after the spring freshet was over. There is one small riffle still down quite a ways but I am not very familiar with it. I never was there but once and the water was very low at that
3687 time. That rapids is along near Smith's bridge. There were numerous boulders there, not so many as at Treat's Island. Prior to 1871, I have been down to the mouth of the river. I don't remember the conditions there. Before 1871, I have crossed the river at a ford at Brandon's before the bridge was there; also at Channahon. I have been in a row-boat on Lake Joliet. We used our boat to go across to the swamp on the west side to hunt for ducks. There were several rowboats there used for the same purpose. Never knew of any boats being used on Lake Joliet for any other purpose. I never knew of boats either going up or down the Desplaines between its mouth and Adams' Dam, prior to 1871. They cannot go up, there is no use talking about it. It is impossible for a man to row a boat up that river at any time of
3689 the year; that was so before 1871. When there was water the current was too swift and there were too many boulders in the river, and when there is not water, they cannot row boats. Never knew but the one boat I spoke of awhile ago going downstream from Adams' Dam to the mouth of the river; that was the one the fellow got

drowned in. I don't know that the boat was capsized;
3690 know that they got drowned. They started in a boat and we found the boat and one of the boys very close by. That is the only time I recall anybody trying to take a boat down. I never heard of any commercial navigation being carried on on the Desplaines river, either before or after 1871. I have seen the river frequently since '71, also since 1900, when the Sanitary District commenced to discharge water into it. You cannot row a boat on the river from Jefferson street—from the upper dam. The current is too swift. I have heard of one or two men that went
3691 down in boats but they never came back. Since 1900, I never knew of anybody trying to take a boat up the river above Lake Joliet. I never knew of anyone trying to take a boat up from the mouth of the river as far as Lake Joliet, or any point below Lake Joliet.

Cross-Examination.

3693 When I was a boy living on the farm I saw the river occasionally. Generally went down there on Sundays instead of going to Sunday School. After we got our fall work done and our spring work done, and wanted to go hunting we would take a day off. When we lived in Joliet, I would see the river oftener in the city than any other place, but in buying cattle and driving we were up and down across the river. When I was in the boot and shoe business, I saw it less than any other time. I did not see it during the seven years I was in Kansas City. Since 1891 until the present time, have not paid much heed or attention to the river except as it appeared in Joliet. I was not identified
3695 with river business of any kind. The rapids near Joliet, I should judge, I am simply guessing, was about a mile long. I have crossed the river on the rapids. I never went up and down the length of the rapids in the river. There was a ford over the rapids where I have crossed a good many times. Not every year for the last thirty years
3696 outside of the time I was in Kansas City. I crossed with a team. Sometimes there would not be any water to speak of; other times if there was rain for a time or
3697 a day or two ahead there would be twelve or fourteen inches of water. I don't remember that I ever crossed it when it came up to the wagon bed. I probably have crossed it when it was over the hubs of the wagon wheels. If it was

underneath the hubs or did not cover the hubs, I would not consider there was much water there. Don't know how many boulders there were in that rapids, never crossed them in a boat. Below that, I should judge it is close to five miles,
3698 there is another rapids. It commences at the north end of Treat's Island, I should judge they were half a mile long. I never passed over those rapids in a boat. I have crossed the river at those rapids with a team. I went over one branch of the river to Treat's Island and then crossed the other branch of the river. That was quite a while ago, when I was living on the farm. I have not crossed over the ford there since 1866. Don't remember just how deep it was then. There is rapids on each end of Lake Joliet. I never passed over the rapids at the lower end of Lake Joliet in a
3701 boat, nor through them. My observation of the boulders was had either from the bank or while crossing the stream. I would not say how many boulders there are. I have not noticed them since 1866. Since the drainage water is in you can see where they are, but you could not see the boulder proper itself. The water covers them. You
3702 see a disturbance of the water where they are. It is not literally true that I saw boulders two or three years ago, nor last fall, nor for the last eight years. The truth is I have not forded the river there since 1886. Have not
3705 observed the boulders except when I forded the river. They have built a bridge below there. Since the water is turned it, I did not go across that ford at all, because I could not. They built a bridge below and of course we do not come in contact with the boulders. They built the bridge in 1892. I have crossed the ford after 1866. Between 1854 and 1866 I crossed it oftener than I did since. I will not
3707 say positively whether I crossed the ford since 1866 or not. I am not clear about it. I might and I might not. I cannot call it to mind if I did cross the ford since 1866. I have not observed those boulders since 1866. Don't
3708 assume to know how many boulders they have there, nor their size. There is another rapids down the river before you get to the mouth but I don't have much recollection of that. I have been there once but I would not describe them. You could tell there was boulders in the river along the rapids by the action of the water running around them. I don't know how much water there is over them. I think the rapids extend the whole length of Treat's Island. I never measured so I don't know how long the island is.

3714 ISAAC W. RICHARDS, a witness called by defendant, testified as follows:

Direct Examination.

My name is Isaac W. Richards. I am 42 years old and live at Joliet. Came to this country in 1866, was 22 years old then. Live just outside the city limits, southeast. Have lived in and close to Joliet since 1866. Business is farming principally. Farm is six miles southeast of city, about four miles from Desplaines river. Lived on that farm eight years. After that, I lived in Lockport for three years; after that was living southwest of the city. Live in city now. I am familiar with the Desplaines river, commencing with Jackson street and down as far as Lake Joliet. During five years after 1866, I saw the river probably three times a week. When I would be in Joliet, I would have to cross the river at Jefferson or Cass street. Used to go down to Malcolm's mill where Adams' Dam was. There was a sawmill and a grist-mill together. Would go down there probably once a month between 1866 and 1869. Would observe the river. The mill would be operated a very light portion of the year. My
3716 father-in-law took some logs there to be sawed in '68 or '69 and we had to take those logs over there. Could not get them sawed because there was not water enough. We took them away from there on the snow. I think my father-in-law kept them waiting there eighteen months. Did not succeed in getting them sawed. We took them up to Hickory creek, four miles, to Bevington mill. I think they were sawed there. We used to take grain to the grist-mill and some-
3718 times would be a good while in getting it. Would not take the grist there until the fall and would wait sometimes two months before we got it. They were only able to operate, I would say, in the fall and winter. Malcolm's mill is about four or five blocks below Jefferson street. From 1866 to 1871, the conditions were such as that there was very little water in the river. I have seen the river so low just below Dam No. 2 that I could cross the riffle with slippers and never got my foot wet, by stepping on stones in the dam. I could not say how long it would be continually in that condition but I might say for six months out of the year there is practically no water going over that dam. The spring

freshets would occur when the snow was getting off.
3719 Sometimes would have a June freshet. '69 was a wet year. There was water coming over then more than any other year. From the period after the spring freshet throughout the summer and fall, there would not be any water going over there worth mentioning until November or into December. There would be just what would seep through the dam, just a few inches. Never knew of a rowboat being taken up or down the river between Jefferson street and Lake Joliet during the summer or fall. I don't think it was possible.

I recall the rapids from Jefferson street and Brandon's road. Below Adams' Dam the stream had a good many
3721 boulders in it, lying promiscuously across the stream. They extended down as low as Hickory creek. They would vary from half a bushel to three or four tons. They were there before 1871 and have remained there since. I don't think it possible for a rowboat to pass down through those boulders; they were lying in such shape that if you dodged one, you would hit another, the rapids there being quite fast. I saw the river below Lake Joliet prior to '71, but not very often. I may have crossed the river at Treat's Island and I never noticed the condition of the river. I would approximate the stretch from Adams' Dam to north Hickory creek half a mile. I never knew of a boat used on the river
3723 at any point for commercial purposes. Never knew of any boats of any kind being used above Lake Joliet. I used them on Lake Joliet for fishing purposes. There were other boats there used for same purpose, little rowboats. Never knew of any boats used on Lake Joliet for commercial purposes. I remember when the deep cut was opened into Lake Michigan drawing water to the river, in 1871. We got more water after the pump started. It killed all the fish in the stream. The water was very dark. There has
3724 been no fishing in the river since then to amount to anything. I am familiar with the river since 1900 when the Sanitary District water was discharged into it. I have not known of any boats having been up or down between Malcolm's Mill and the head of Lake Joliet since 1900. It might be possible to take a boat down the river but I think it would be impossible to take one up, the water runs too fast. I have never known of any steamboat used for commercial purposes on the river, at any point, since 1900.

3725 *Cross-Examination.*

I came to Will County in the spring of 1866. I was 22 years old at that time. The first two years I lived in Will County I lived about a mile and a half southeast of Joliet, about a mile and a half, perhaps not that far, from the Desplaines river. I used to see the river pretty often, twice or three times a week, I would be in Joliet a good many times and always crossed the river when I was in town, generally at the Jefferson street bridge. At times I was at the mill, and at times I was hunting and fishing up and down the river. At Joliet, there was a very little water in the river most of the time, there was always some. We fished at the mouth of Hickory creek and down to Lake Joliet. We succeeded in getting fish there better than in the river. We got bullheads,
bass, red horse and suckers. There were holes four or
3727 five feet deep in Hickory creek, and possibly down about
Lake Joliet there were holes in the river deeper than that. It is about a mile and a quarter or a mile and a half from Joliet to the head of Lake Joliet. I never measured it. We fished at the lake as much as anywhere; we set our lines out there.

3728 There was water enough, constantly, for fish to pass up and down the river if they wanted to, up as far as Dam No. 2,—that was the Jefferson street dam. I have seen the water so low there just below the Jefferson street dam that a duck could not float up and down it. He would have to walk, and he would not get his feet wet either. I have never seen ducks walking up and down stream, but I saw water so light in that stream that I could cross it in my slippers and never get my feet wet. I would step on the little flat stones in there, stones no bigger than a dinner
plate. They were about two inches thick. It might
3729 have been a hundred feet across the bed of the stream
at that place. There was very little water there, a little seeping through the stone. I mean the stream was 100
3730 feet wide. The bed of the stream was 100 feet wide, but
the stream of water running down it would not be over 6 inches to a foot and a half wide between the stones, just a little water. There was no stream there that I would call a stream. I would not have to step on the stones to avoid getting my feet wet for more than half the distance across, say 50 feet, maybe not over 25,—that is a good while ago

to remember how far I stepped. I did not measure
3732 the stones. The best of my judgment is that they were not over two inches thick. Some of those stones were just at the top of the water and some were clear out of the water. There was more water in the bed of the creek, there was more trickling down through the center. There was a little water running down there all the time. That was
3733 in the summer time, anywhere between June and September. Usually there would be a freshet in the spring, when the snow and ice melted, and at least as often
3735 as every other year, there would be a June freshet. After that generally we would not get any water until at late fall we might get a freshet in November, or the first of December, just before the closing up for the winter.
3737 The grist mill was there when I came to Joliet in 1866. It was there from 1866 to 1870, but I do not know when it was taken down. I took grists of wheat there to be ground, generally, buckwheat. I have waited for it to be ground for six weeks or two months. A fellow named Malcomb
3738 run and operated the mill. My grist would consist of from 50 to 100 bushels, that was my entire crop of buckwheat. I usually had it milled at one time, and shipped it to Joliet and sold it. There were other grists in the mill while I was waiting for mine to be ground, evidently,—I suppose my grist was waiting its turn. I took it for granted
3740 that the mill did not run. I did not know how long it would take to grind the 100 bushels. I had buckwheat ground there in 1868 and '9.
3741 I am living in Joliet now. I have been engaged in the wire business, and in selling western lands for some time.

Re-direct Examination.

3742 In regard to this grist which I had to wait to get ground in 1868 and '9, I could not say whether the mill was running when I took my grist there to get ground, I do not think that it was. When I had to wait so long to get my flour ground, I made inquiries why it was not ground sooner.

Q. And what did you learn?

A. That they had not water enough.

Objected to as hearsay.

JAMES G. ELWOOD, a witness for the defendant, testified as follows:

Direct Examination.

3743 My name is James G. Elwood. I was born in Lockport in 1839, and my family moved to Joliet in 1843, where I have made my home ever since, except when I was in the army and abroad and in school. My father came West in the engineering corps on the canal. That is what brought him to Lockport. I have been familiar with the Des-
3744 plaines river more or less all my life. I have been in the real estate business since 1861. I have been interested in waterway questions and drainage questions out in that vicinity and have been a representative for the City of Joliet, on the Illinois Valley Committee, in opposition to the Chicago Drainage Plan. I was interested in having the deep waterway put through down there.

3745 I waded across the Desplaines river in Joliet many a time as a boy, and fished in it a great deal, and have traveled up and down it. The river has at times been so dry that no water was passing through it. My first recollection of wading in the river was before the canal was opened in 1848, and after the canal was opened there has been many years when there was not sufficient water passing down the river to supply the Channahon level. I have seen the sluice gates at Jefferson street bridge, or Dam No. 2 I think it is called, wide open and the lock gates at the guard lock that were formerly there, opened wide. Not the slice gates in the lock gates, but the gates themselves with every drop of water was coming down the Desplaines river passing into that Channahon level, and the canal; and I have frequently crossed the river on the old stone Dam No. 2 on the crest of it, with the water three or four or perhaps five feet away from the crest. We waded between that dam and the
3746 Adams Dam many a time with no water flowing down the stream, so far as I can recall, whatever, except some possible seepage through the Stone Dam. That condition existed, in frequent years, but I would not be able to say how long it existed each season. The river has sometimes been so full of water as to make it serious and uncomfortable for us in Joliet. I recollect in 1866 it flooded a section of the country I am interested in. That did not last more than four or five days. Prior to 1871, we called it a dry stream

during the summer season. I think so far as I am able
3747 to recall almost every year there were times when there was no water passing down the river. There may have been years that it did so, but my impression is that there never was a year until the deep cut was made in the canal but what it was dry—that is, no flow of water. Before 1871, I had been down the river seevral times in a skiff, when the water was at ample stage. We would put the boat in just below the Adams Dam. The water then was just high enough so that we could get over the boulders, and those we could not get over we would try to dodge. I don't think at any time that I have been fishing down there but what I could wade across the river without my clothes off without any serious trouble. Not much higher than that (indicating his stomach) except in cases of extreme flood. I went down to the mouth of the Kankakee in my skiff, to the junction of the Kankakee and Illinois rivers. I had better success below Lake Joliet than I had from Adam's Dam down to the lake. We upset once, on one of those boulders near the mouth of Hickory creek, but we were able to dodge the boulders around Treat's Island. My fishing experiences and vacations were usually taken along the latter part of April and through the month of May. There was a remnant of a dam in the west channel below Treat's Island, and there was a number of boulders in both channels. I do not recall any rapids at the point called Smith's bridge. In going down the river, I never went beyond the Kankakee feeder. We made a portage
3749 there over into the canal, and came back by the canal into the lock and back home. It was easier as a rule to make the portage there, we were told. I never took a boat up stream I have no desire to go up against the current or the boulders. It would have been possible with sufficiently strong pulling oars to have taken a skiff up the stream at any season of the year before 1871, from the aqueduct up to say the Jefferson street bridge. The water was amply deep. I never knew of anybody doing it. The only upstream boating I ever knew of was on Lake Joliet, where there was no current perceptible, ordinarily. I have never known of any boats, skiffs, or other boats used for commercial pur-
3750 poses on the river, only for pleasure. I would not venture to send any merchandise on the river by any kind of boat adapted to commercial purposes.

Shortly after the deep cut was made, the water became

so black and stagnant and foul that no fish, snakes, or turtles lived in the river at all, and that was the condition until the Drainage District opened their supply, except when there was a very heavy freshet. I have not known of any boats being used on the river between Joliet and Ottawa for commercial purposes since 1900. I would not want to risk the enterprise. I have not seen skiffs on the river since the water was turned in in 1900 except down at Lake Joliet a dugout or scow boat, in passing over the bridge. They were used for hunting or fishing,—I have used them myself.

Cross-Examination.

3752 At the upper dam, or Dam No. 1, the water, whenever there was enough for it, ran over the dam. When there was not enough it was let through the lock gate or the sluice gate on the east side. Dam No. 2, the Jefferson Street Dam, —there was a basin between the two dams, extending about five-eighths of a mile—and the Channahon level was let out from this basin, at the ordinary full stage of water in the Channahon level. In speaking of the Channahon level,
3753 I mean the level of the canal. There was a guard lock there for the purpose of preventing overflow of water, and for providing more water than could be passed through the sluice gates, which were also feeders. The sluice gate and guard lock were feeders to that portion of the canal which extended about eleven miles between Joliet and Channahon, and called the Channahon level. My opinion is that in low water, every drop of water that could be obtained from the Desplaines river was turned into the canal and as I said in my direct testimony, the lock gates themselves were swung wide open and fastened opened so as to let all the water run through the width of the lock as well as the other gates.

3754 The Du Page river crossed the canal at Channahon, between two locks, and the level following down the river from Channahon is fed by the water between those two locks, part of which comes down through the Du Page river when there is water flowing. The excess that didn't follow down onto the next level below passed over the dam and went down in the Desplaines river below Channahon. The Du Page river comes in from the north, and crosses the basin between the two locks there. Its water is poured, in the first instance,

right into the body of the canal, and then when the canal had a sufficient amount of water in it the balance of it passed over the side and into the valley or bed of the Desplaines river, so that from Channahon at the crossing of the canal in the Du Page river at Channahon, whatever volume of water there is either in the river, or in the river and canal to-
3755 gether, which is not required for the canal beyond that, is put back in the Desplaines, that is, the excess over and above what is needed for that next level comes back into the canal. The canal is 90 feet across at the surface, and slopes in somewhat at the bottom, depending on whenever it is a stone wall or dirt. I think about 60 feet is right, including the berme bank and towpath. The average depth is about five and a half feet, and as a rule there is plenty of water.
3756 The deep cut was made in 1871, but the pumps were not started at South Chicago until about 1883. It was the sewerage from the city that killed the fish. I have waded across the river up the center of it almost all the way from opposite the penitentiary clear up to Lemont, that is above where the water was turned into the canal and prior to 1871. The places I picked out were the shallowest, I do not know how deep it was in the deeper places. The river was virtually dry; all that section is a flat, limestone bottom, and I cannot tell you how deep the holes were, but I did not get over knee deep in any of my wading, not over my rubber boots.
3757 Above where the Desplaines river discharges itself into the canal, the water in the canal, the upper basin, was from 12 to 14 feet deep before the sewage was turned in, and the deposit made there. Above the basin, on the next
3758 level above, between the twin locks, I think the water was five and a half feet deep all the way in the canal.

I never went with a boat below the old feeder, the Kankakee feeder, which is about three-eighths of a mile from the mouth of the river. Then I transferred, and made a portage going back into the canal. We found no great difficulty in getting the boat down that far; we upset once or twice, but that was part of the fun. The water was a little over knee deep, so that was no real danger except our provisions got wet
3759 and our powder would not stay dry. Just below Treat's Island, the river at ordinary stage of water was from 70 to 90 feet wide. The channels on either side of Treat's Island were neither of them in my judgment 75 feet wide, although if a survey were made showing them to be 100 feet wide, I would yield to the engineer who had measured it. I

am only giving my eye in measurement, and from wading across, just as it impressed me. I am speaking about the width when I used to go fishing there.

Re-direct Examination.

3760 I have been wading up the river above the upper basin, above where the river was discharged into the canal. I have been up there when there was no water moving at all, just little pools here and there. The bottom of the river is almost an entire flat limestone rock, very level, and there
3761 are places—I suppose or know there are holes there, but how deep they are, I do not know. The length and breadth of these holes depended on how dry the river was. There have been times when you could wade across dryshod from one bank to the other. The general condition when I have been up there, with but one exception was that there was no water running down. What time of year those visits were made, I do not know. I began wading across the Desplaines river in Joliet, before the canal was completed, I think about 1850 is about the time of my first recollection of paddling around in the river itself. It was before the bed of it was changed by the Drainage District. Above Lockport and before the canal was open, there was a certain time when the river was in the condition I have described, and other times, when there was water in there, it was a river.

W. H. WHISLER, a witness for the defendant, testified as follows:

Direct Examination.

3911 My name is W. H. Whisler; I am a steamboat man. I have traveled on the river all my life. I have had a license since 1870, and before I had a license I floated logs and lumber. My experience has all been on the Mississippi. I first commenced pulling oars, floating lumber, in 1865, from the mouth of the Chippewa, and went to Lyons Island. After that, we floated in different places through to St. Louis and different points on the river till we got to using small boats, then larger boats, running without oars. Then we got to running without oars. Then we got to running double rafts and
3913 using the bowboats. The largest raft I have ever run was 290 feet wide, 1,422 feet long. My first license was

for pilot in 1870. Three years later I got a license for master and pilot. I ran second pilot for three or four years, then I got to be master. The first boat I run on was a little side-wheeler, then a small sternwheel, and then larger boats. I took out the steamer Dayton, 130 feet wide, 30 foot beam and about 150 feet long over all, in 1881, running for eleven years. Then they built a new boat, and I run her for the last year.

She was 137 feet long and 32-foot beam. We were in
3914 the rafting business. During the last year I have been running the Steamer Weyerhauser, a pleasure boat, 142 feet long and 33-foot beam. I have been familiar with navigation on the Mississippi since about 1865. The fartherest run I have been was from St. Paul or Stillwater to Memphis, on floating rafts, but most of my runs have been to St. Louis,

Albany and a great deal to Keokuk and Hannibal. But
3915 for the last three or four years to Rock Island. I have been generally familiar with navigation as it is carried on in the Mississippi between the points mentioned since 1865.

I have seen the Desplaines river twice, once from the shore. The first time was six weeks ago last Sunday—I went from

Joliet to Treat's Island. I went down again this morn-
3916 ing from Joliet to the mouth of the river. I went up with an auto, and stopped at different places. We crossed the river several times on the first trip; only once yesterday, that the first bridge below Joliet. I am familiar with the Rock Island Rapids in the Mississippi, and have done a little warping and cordelling of boats. I understand the process.

3917 The Desplaines is very swift, swifter than any water we have on the Rock Island Rapids; very much narrower; it looks to me like there is a good many boulders or rocks on the bottom; I don't know what they are. When you go to the

rapids, I can tell you what they are, but I have not been
3918 on the water of the Desplaines. I think there are boulders in the Desplaines because wherever the big falls are there is a big break in the water.

Q. From your observation or examination of the Desplaines river, I will ask you whether, in your opinion, that stream from Joliet to the Illinois river is, or is not, a navigable river?

Objection; overruled; exception.

I don't think it is navigable. I would say it is not navigable, by any means. It is too narrow, too swift. I don't think you could take any kind of a boat safe.

Q. Do you think it would be possible to carry on profitable commerce in any kind of a boat on that river between Joliet and its mouth?

Objection; overruled; exception.

I don't think so. I don't think it is possible.

Cross-Examination.

3919 In taking logs down the Mississippi, we floated them. When we got in still water, we had to have boats to shove us between Lake St. Croix and Lake Pippin. Most of my work was from the foot of Lake Pippin to Rock Is-
3920 land. I was pulling an oar, for guidance of rafts, in 1867. I have seen the Mississippi when it was very difficult to navigate. I have taken different length boats up and down the (Moline) rapids—from 132 to 142 feet long, 32 feet wide, and from 180 to 216 tonnage. I do not know what the fall is at the Moline Rapids. But take it at Moline Chain, Duck Creek Chain, Campbell's Chain, Sycamore Chain and Cabin Chain, is the heaviest chain. I think the Moline Chain they claim for six miles there or about two miles, it is six feet or something; I have heard that said. I do not know anything about the navigation of the Snake river; never
3922 heard of the navigation on that river and over rapids that are sixteen feet fall to the mile. If they do navigate rivers of that much fall it is a kind of navigation with which I am not familiar. I would not say that they could not do it; I would not want to try anything of that kind. From my experience I would think it was impossible. I do not know
3923 anything about navigating rivers that have a fall of 25 feet to the mile. I think the Desplaines is too narrow for navigation. The narrowest place on the Mississippi where I have navigated it, the channel was supposed to be 200 feet wide. That is the rapids between Rock Island and Le Clair, on the different chains, where they have dredged out. The water there must be half a mile wide. The Desplaines looks pretty small to me after having had that kind of experience.

3924 I do not know of any place where they are navigating rivers not over 40 to 30 feet wide. I have never been on any of those little rivers. I have never passed through Crooked river, the little stretch of lakes down to Cheboygan river, near Petoskey, Michigan. It is possible to navigate a

river 30 feet wide, crooked, so much so that it bears that name, by boats 75 to 100 feet long, depending on the depth of the water and swiftness of the current. If the water was 2½ feet deep, I don't know what you would take over her. You couldn't handle a boat unless you would drop a line. We don't handle that light draught boats. My experience is on a river that draws more water than that. My objection to the Desplaines is that the current is too swift and the stream too narrow—that is why I think it is not navigable. I
3926 have seen the Desplaines twice. The first time it was a wet, rainy day, and we went to Treat's Island, I think about 12 miles. We crossed the river three or four times, got out and looked at the river at several places, and from the bridges.

Re-direct Examination.

3928 The road runs along close to the river—we saw the river from the road as we went down, and at those points where we stopped and got near it.

3929 Q. I will ask you whether or not the obstructions which you mentioned in the river would have any effect upon its navigability?

Objection; overruled; exception.

A. It has.

Q. Has the velocity of the water anything to do with the navigability of a narrow stream?

Objection; overruled; exception.

A. It has; in the swift water in the whirls and rapids
3930 it is impossible to handle a boat, and if the boulders are in the channel you cannot sway from side to side and get your boat safely through. For instance, in low water, with a boat drawing three feet, and there is but four feet of
3931 water, her rudder is close to the bottom and won't take effect; she will run away from you, will go from one side of the river to the other; she will go to the rocks, and you have got to back up a hundred yards or two to get her and give her another pull, and come ahead on her again. Sometimes you will go down through a chain sideways to a place where you can't stop or start her again.

Motion by complainant to exclude question and answer as improper re-direct examination; overruled; exception.

JOHN McCAFFREY, a witness for the defendant, testified as follows:

Direct Examination.

3932 My name is John McCaffrey. I am sixty-five years old, and have been in the steamboat business since 1865. I started in the lumber business on a small steamer in 1865, on the Mississippi. The boat was about 75 to 80 feet long and 16 or 18 feet wide. I have been in the steamboat business since that time from St. Paul to New Orleans. We run up the Chippewa and Hennepin Canal, ran a boat up the Illinois is thirty or forty miles above Peoria, on the Ohio from Carroll to Golconda, on the Tennessee from Paducah to Florence, Alabama. I have been around the Mussel Shoats
3934 on a boat; went around by canal. I have been up the Cumberland 100 or 150 miles. Governor Van Sandt and I were in partnership for fifteen years. I got my
3935 first papers in 1865, as a master and pilot both, from the United States. I have not followed the river for three years. When I quit, I owned the Pen Brook, a boat 135 feet long, running between Paducah and as high on the Tennessee as Florence, Alabama. The last boat I built or had built was the Joe Long; I built her for the upper Rock
3936 Island Rapids. I was a rapids pilot for 12 or 13 years. From 1865 to 1905 I followed the river. I have had experience with warping and cordelling boats; it was the only way to get up the Chippewa when we first started, because of the rapids. I have seen the Desplaines river, on the 25th or 26th of April, 1908, and again yesterday. The first
3937 we crossed all the bridges down to Treat's Island. I took a look at the river, got off at the bridges. I went down the second time to the mouth of the Desplaines and Kankakee. I saw the cofferdam or work that was put up or commenced. The first trip we saw the river from the road
3938 on the way down. It did not look much like a river to me—like a creek or slough. The water was very swift that I saw in there, and crooked, and seemed a very rough bottom from the way the water reared and pitched at different places, because of rocks or some obstructions. The water was very swift and very rough at the point where the dam is being built. It was not so rough at Treat's Island, but it was very swift and crooked. You could not get nothing up that way.

Q. From your observation of the Desplaines river, what have you to say as to whether or not the stream between Joliet and the mouth is a navigable stream?

Objection; overruled; exception.

A. I would say that it was not. I don't think you could get anything up there that would do any business.

3939 I began on a small boat about 75 feet long, and have navigated the Mary Morton, 200 feet long. The Desplaines would not be navigable for any boat that I have been familiar with on the Mississippi or its tributaries engaged in any kind of commerce. I never saw a boat that I think could navigate the Desplaines river for purposes of navigation.

COUNSEL FOR COMPLAINANT. I want it understood that I have an objection to all this.

The COURT. Yes, your objection stands to all these questions.

3940 The river is too swift and too crooked, and there is not enough water in it to be navigable. If there is not enough water over the obstructions, they are the worst kind.

Q. Would it be possible, in your opinion, to navigate the rapids of the Desplaines river by the method of warping or cordelling?

Objection; overruled; exception.

A. Not with a steamboat; it is too crooked, and there is not width enough in it. A boat can be cordelled on a stream the shores of which are heavily wooded, if the limbs do not stick out too far. You can lay a rope any place where

3941 it is not too swift. You cannot cordell a boat if the stream is too narrow; you cannot keep it off the bank. When the water sets in to the bank, the boat will go in there. If the water sets out, the boat will swing out, going at a slant. It would not be possible to do anything with any boat I have ever been familiar with in a narrow channel and swift water by way of cordelling. You have no room. You could not cordell in the Desplaines; there is no water. It is not wide enough.

Cross-Examination.

3942 Most of my work has been done on the Mississippi and its tributaries. I have been down the Desplaines twice, on the request of some one who wanted me to come over here

and testify, and I made an examination on that account.
3943 There is not water enough in the Desplaines, and the current is too swift for navigation. A little stream can go as fast as a big one if you give it slope enough. I do not know what the slope of the river is; I did not take soundings. In my mind's eye, the water was swifter than anything I ever saw before. I have never been on the St. Lawrence, or
3945 the Fox, have never been on any river except what I told you. I have been on the Tennessee and the Ouachita. I was on the latter river with a boat 115 by 20, which
3947 would carry 80 or 90 tons. I call that a small boat. A flat bottom boat, with 15 feet beam, would have to be 15 or 16 feet long. I suppose that a boat 10 or 12 feet wide, to carry 10 tons, would have to be 20 feet long. I never operated a boat of that size, nor saw one operated—not a
3948 steamboat. I think there are some gasoline boats, flat-boats, scow built, that I have seen that would carry that much. I have never seen them navigating from point to point carrying freight for commercial purposes; they say there are some of them, but I have never seen them. I have never seen a boat of that kind on the Wabash or Ohio rivers; they may be there on the upper river.
3950 The shallowest water we have ever run on in the Tennessee river was 4½ feet. I have navigated a boat on less than that in the Mississippi, with a minimum depth of 3 feet. I have never navigated on two feet. I have done some
3951 warping of boats on the Chippewa and Ouachita rivers. The latter comes into the Mississippi about 16 miles from New Orleans. They have big boats running up there when the water is at a good stage. It is seven or eight years since I was up there. I warped a boat up there in one place. I do not know how steep the slope was; the river was pretty swift and crooked; it must have been 300 feet wide, deep in to the shore, and got shallow out in the middle. This was at a bend. We pushed the boat up to make a turn there. The slope of the Desplaines looks to me about double what we have on the rapids; I think it is about 18 inches to the mile on the rapids. I never knew of people navigating on
3954 rivers that had a slope of 10 or 12 feet to the mile, or as high as 6 or 7 feet to the mile. I don't think they could navigate a slope of 16 feet to the mile. At the Mussel Shoals of the Tennessee there is nine miles that has a slope of 80 feet; they have a canal around that.

J. W. RAMBO, a witness for the defendant, testified as follows:

Direct Examination.

3955 My name is J. W. Rambo. I am sixty-four years old, and reside at Le Clair, Scott County, Iowa. My occupation is that of a pilot. I have been following the rivers for 50 years. I got my first papers in 1864. My life work has been on what is known as the Rock Island Rapids, extending from Le Clair to Rock Island. I have been there for 45 years. Before that I worked as a raftsman, and went from Stillwater to St. Louis for three or four years. I am still in active
3956 work. I have owned three or four boats, operated at the rapids. My navigation has been entirely on the Mississippi, except one year I took a circus to Vicksburg.
3957 I saw the Desplaines river on the 26th of April for about seven miles from Joliet down the river, from different points along where we could reach it, and crossed the river on several bridges. Then again I made a trip down to the mouth of the river where it enters the Illinois, yesterday. We found rather a rough looking piece of water. From the appearance of the surface of the water there must be very rough and rugged and snarly bottom under it on account of the constant swirls and things on top of the water. Of course, we did not see any in most of the water. There
3958 were a great many trees sticking out, but we did not see any boulders; but there must be something pretty solid under those swirls. I am used to that kind of water, but I have not seen anything where I lived that compared with it at all. These trees we saw were sticking out in the river. Just where the river empties into the Illinois there seems to be a very rough place, quite a fall.

Q. State whether or not, in your opinion, and from your observation of the river, the Desplaines is or is not a navigable stream?

Objection; overruled and exception.

A. I would say that no sane man would ever try to take anything up or down the Desplaines river in the shape of a steamboat. I would not go down it in a skiff.

Motion to have the answer excluded.

3959 I have navigated the river at Rock Island about 45 years. We can navigate the Rock Island rapids, and

we could not navigate this, and nobody else, I don't think. The normal low water stage of the Rock Island rapids is about 3½ feet—low water now; before it was improved I have seen it when there was not 20 inches in the channel, in 1864. That is the low water gauge of the Government, the lowest mark they know of. It was navigated at that low water mark; we had a little boat or two that we got over it at that time; she was about 85 or 90 feet long and probably 18 or 20 feet beam.

"The Enterprise," they called it. Twenty inches was
3960 the best water we could find. Aside from that one year before the improvements were put in, the normal low water flow over the rapids was 30, 31 or 32 inches. The boat that we took over in 20 inches used to carry a small amount of freight.

I have seen some cordelling. I have had plenty of it
3961 on hand. It is not possible on the Desplaines, on account of the bad shore; too many obstructions, and the water will not permit. It is a very swift water and crooked river. You can cordell wherever you have a shore to walk on. Cordelling is where you take a line, put it over your shoulder and pull something up behind you. Warping is where you fasten up above you and run a line down and pull up to that. In warping you have to have a little width
3962 on account of the sheering of the boat. She would run first one way and then the other unless you could hold her steady; in warping around a bend you are pulling straight toward the warp. The boat will not go around the bend and go straight toward the warp; you have to have side lines to hold her in the channel, and pull her first one way and then the other. It sometimes happens that your boat will swing off and present her side to the water; you have
3963 to have enough width to let her run a little, and then she will come back. I do not think a boat could be warped at Treat's Island rapids. I never tried such a job as that. I have had to warp a good many boats into the swift water of the Rock Island rapids a hundred times.

3964 Nothing in the line of a steamboat could go up that river. I don't know of a boat in our country that could go up that river, and I have seen them all, and handled pretty nearly all of them in the Mississippi for the last 40 years. I include all sizes and all kinds, and I am there for that purpose at the rapids.

Cross-Examination.

3965 There is about a foot and a half fall in the rapids at Rock Island, two feet at what we call Smith's Chain; Sycamore below that has three and a half, then there is two and a half, then Hamden's Lake, three miles long, where there is no fall at all; then Campbell, with a fall of a couple of feet, and from there to the Rock Island bridge I think the total fall is something like 21 feet. I think the distance is about 15 by channel. A 21-foot fall in about 15 miles, 1.4 feet of fall per mile. In low water there would not be
3966 so much. The greatest fall in this distance is 3½ feet per mile.

3967 I do not know of any navigation on any river that has a fall of 6, 7 or 8 feet per mile. I have never seen anything of that kind; have never been on very many rivers; have never been on the rapids of the St. Lawrence. I have heard of the Snake. I do not know anything about the fall in that river, nor whether it is navigable or not. I do not think it possible to navigate a river with a fall of 16 feet per mile, with anything we have in the steamboat line in this country—that is, the Mississippi river and its tributaries. We have as good steamboats there as anywhere. Boiled down, then, to the final analysis, I do not think it possible to navigate a river with a fall of 16 feet per mile. I never heard of navigating a river with a fall of 25 feet per mile. I have heard of the Fox river, and have run boats that have
3969 been running there, but they could not go up over our rapids here. I have run boats on the Rock Island rapids for 40 years; there are a lot of people who know the channel there, but who cannot take a boat over. That
3970 is the most difficult rapids that I know anything about personally. I base my statement of the non-navigability of the Desplaines a good deal on my experience on the falls of the Mississippi. The smallest steamer that is operated on the falls of the Mississippi is about 75 feet in length. There are some electric launches, mostly pleasure boats, from 16 to 90 feet long, that go up and down the river. I have carried lots of them up and down the rapids. There are also
3971 a good many larger steamers going up and down these rapids. I would not like to risk a boat 100 feet long on the Desplaines. The smallest steamboat that I spoke of, about 70 feet long, was about 17 feet beam, and carried 40 to 50 tons. I do not know of any boat carrying ten tons. A

boat 15 feet wide, flat bottom, carrying ten tons, would have to be about as long as she was wide. I think that a boat
3972 30 feet long by 15 wide, built on the flat bottomed plan, would carry ten tons without any trouble. I am not operating any boat of that kind, have never seen any of that kind, under any kind of power; have had no experience with that kind of navigation.

Q. In your opinion, could such gasoline boats as you have seen on the Mississippi river go up the Desplaines?

Objected; overruled; exception.

A. There is nothing of that character on the upper Mississippi river, not that I have seen there.

Q. You were asked about a steamboat able to carry ten tons, 20 or 25 feet long. In your opinion, could such a boat go up the Desplaines river?

A. No.

My business as pilot on the Rock Island rapids is to replace the regular pilot on the ships, and take the boat up and down the rapids. There are five or six of us.

JOSEPH E. McCULLOUGH, a witness for the defendant, testified as follows:

Direct Examination.

4034 My name is Joseph E. McCullough. I lived at St. Louis, Missouri. I am sixty-two years old. I am a steamboat master and pilot. I have been a pilot for forty years and a master for twenty-seven years. I commenced to learn the river in 1862, served an apprenticeship until 1865, got my license from Cincinnati to Memphis on the Mississippi river, afterwards learned the river from St. Louis to New Orleans and commenced piloting there in 1867. Learned the Cumberland river just after the war, 1862 or 1863; I am a pilot from West Virginia—Huntington, West Virginia, to New Orleans and from St. Louis to New Orleans, and from Nashville on the Cumberland to its mouth. Was one of the founders and am president of the Pilot Organization, a benevolent organization.

The most rapid river I ever navigated was the falls of the Ohio and Harbor Shoals on the Cumberland. Took a boat over the falls of the Ohio twice this season. Have not been

over the Cumberland for a good many years. Have never navigated more difficult or more rapid waters in any river. Saw the Desplaines river in April, 1908, and again this morning (June 2, 1908), from Joliet down to the mouth of the river. I certainly think it is not navigable.

Objection.

4038 It could not be used for useful purposes of commerce. It is a hard-bottomed river with a very rapid current, very crooked and very narrow. I don't think that it would be possible for any steamboat on earth that I ever saw or ever will be here to either ascend or descend it. This river is much swiften than the falls of the Ohio or

4039 the Harbor Shoals of the Cumberland. Much swifter than the Des Moines and Rock Island Rapids on the Mississippi. Never knew of any steamboat in my experience that could navigate the Desplaines river. Assuming that 450,000 cubic feet a minute of water has been added to the natural flow of the Desplaines river, I would say that in its natural condition it would go dry.

4040 I am familiar with the process of cordelling. It is just simply to get out with a lot of men, take a line over the shoulder and go to pulling. I am familiar with the process of warping, which is done by laying a line to the bank, or even laying an anchor out in the river, using your steam capstan and nigger.

4041 A boat could not be cordelled on the Desplaines river because it is too crooked you could not get out on the bank. Nor could a boat be warped, because you could not get any craft that you could lay an anchor with, and even were an anchor laid, a boat could not be hauled up the river by it, because the current would swing it into the banks. I have a boat that draws but two feet of water, and I would not

4042 attempt to try to take her down the Desplaines. I do not think this river here could be navigated with a good sized canoe in safety.

Cross-Examination.

The steepest rapids I ever passed over are the Ohio

4044 Rapids. The fall there is about 28 feet from the head to the foot of the fall, which is about two miles long. The shoals of the Cumberland river are a little over a

4046 mile in length, and the fall is about eight feet. In shal-

low water they have to warp over it, or did before the
4047 Government placed a lock and dam, which gives a slack water navigation. I have heard of the Snake river, but
4048 do not know whether it is navigable or not. If you had all the water needed to make the best navigation, I would not say you could get up and down a slope over four or five feet to the mile. When navigation is accomplished over the falls of the Ohio, the river is banked full, with very little fall. Going up the river is the hard part. In going over the Cumberland Shoals in low water, boats have to be
4050 warped along. If I were told, even by Government engineers, that navigation was accomplished on the Snake river, in Oregon, over a fall of 29 feet in one mile, I would have to be shown the river before I would believe it.
4051 There are a number of dams, wing dams, built in the Mississippi river, simply built out from the shore to narrow the stream. In a number of places they have helped the river, but the balance they have made worse. Dredges are working in the river, but they do not accomplish much, for the reason that whatever is dredged out is washed right back in again. I believe a 14-foot channel can be made through the valley, but not with dredges. I think if they were to wall up the banks of the Mississippi river and narrow it in its widest place it will dig its own channel.

All the navigation I have participated in is such as has been mentioned on the Mississippi, Ohio and Cumberland
4055 rivers. I have never gone up or down the St. Lawrence river, the Columbia or the Snake, nor do I know how they are navigated.

I did not say that no boat had ever navigated the Des plaines river what I said was that I did not think that
4057 there ever would be a boat come up or down. The only small boat I have had any experience with was a small gasoline boat which would, in my judgment, carry less than eight tons. I took the boat to Memphis with a small party a year ago this spring. With that exception I have
4058 never had to do with a boat of that sort. I have seen a great many boats used in commercial navigation that were only capable of carrying about ten tons.

Q. Do you mean boats that are engaged in carrying freight?

A. No, sir; pleasure boats.

A boat 12 feet wide, flat bottomed, 60 or 70 feet long,
4059 could carry ten tons of freight on six or seven inches of water.

When I saw the Desplaines river I knew it was a rock bottom stream, because of the boulders that showed in the river.

Boulders would not make the same appearance in a mud
4061 bottom because a mud bottom would deaden the current.

A boat 60 to 70 feet long and 12 feet wide, such as has been described, if operated by steam, could not carry ten tons of freight, because she would be loaded with machinery.
4063 It would take six or eight inches of water to carry her machinery. Well, I said at first, and I will stick to my text, I don't think you could bring a canoe up the Desplaines river.

My record as a navigator and pilot, if I do say it myself, I can prove it, there are few equals and none my superiors.

In the list of boats shown on page 119 of Executive Document No. 264, being a survey of a waterway from Lake Michigan to the Illinois river, I recognize the names of a great many boats with which I am familiar. The depth of the boats Abner O'Neil, Adam Jacobs, Albert F. Wills,
4067 Alice Brown, Artemus Lamb, E. B. Wood, B. F. Ray, Bald Eagle, as given in that list, is the depth of the boats empty. As to the Alex Swift, Belle McGowan and Big Kanawha, they are towboats, carry no freight, and the depth given is their depth loaded with coal for their own use. From my examination of this list, the depth given are for the boats empty, except the passenger boats.

Re-cross Examination.

4069 In the boats which I have mentioned, where the table gives the length and breadth and depth, in referring to the depth it means the extent to which you can put the shallowest part of your boat down into the water, loaded.

4074 THOMAS F. BOYLE, a witness for the defendant, testified as follows:

Direct Examination.

My name is Thomas F. Boyle. I am about sixty years old and live at St. Louis, Missouri. I have been on the river since 1867; got a first class pilot's license in 1871, and have had a master's license for over 25 years. My license covers
4075 from Grafton to St. Louis and New Orleans; the Ohio river to Paducah, the Ouachita river and its tributaries and the Arkansas river to Little Rock. I piloted for ten years during the cotton seasons on the Arkansas river, before they built the railroad. During the summer season there was not enough water to run a boat. I have been on the higgest boat that ever left New Orleans, and I have been on the smallest of them. The Arkansas river is the toughest river on
4077 earth, the worst of them all. I piloted a big boat on that river, and when there was not enough water for it, I piloted a small one. The lightest boat I ever piloted on that river does not draw over 18 inches. I know the John H. Harbin. It is a very small boat; does not draw over 12 inches.

I saw the Desplaines river once last April, and again this morning with Captain McCullough; saw it from Joliet
4078 down to the mouth. It has a rough bottom, as far as I can understand; it is crooked, and no boat on earth, of any size, or any account, would ever attempt or no fellow would ever attempt to go up in it.

4079 Q. In your opinion is it or is it not a navigable stream?

Objection; overruled; exception.

A. It is not a navigable stream.

It could not now be used for useful commercial purposes.

Q. Assuming that over 400,000 cubic feet a second of water has been added to its natural condition, what would you say as to whether in its natural condition it was navigable?

Objection; overruled; exception.

A. I think if it dropped down a little there would be no water in there at all.

COUNSEL FOR DEFENDANT. I meant per minute when I said per second.

4080 The smallest boats that I have known navigated could not be taken up the Desplaines river. I am familiar with

the process of warping. I have never done any of it, but have seen a good deal of it, and could do it if I had to.

Q. Could a boat be warped up by Treat's Island on this river?

A. I don't think so.

Q. Why not?

COUNSEL FOR COMPLAINANT. Just a minute, your Honor. I move to exclude the last question and answer. It was
4081 answered so promptly I did not get time to object—on the ground that this witness has not qualified for that kind of an answer. He says he never did any of it in his life.

COUNSEL FOR DEFENDANT. He says he has seen it done and could do it himself.

The COURT. It may stand.

It would wear the bottom off of a boat to warp it up either of the channels at Treat's Island, because they are so narrow and crooked. You cannot warp a boat up a stream no wider than the boat is long; you could not get men enough to do it, line enough, power enough to do it. I saw obstructions in the river, consisting of snags, logs, bars and the rock bottom itself. I think you could not see the logs; they were under the breaks. We call that a break when you don't see it; that is a break in the water.

Cross-Examination.

4082 Of course the Desplaines could be made navigable, but it would take a great amount of money to do it. I cannot give any idea of what the greatest slope is that I
4086 have ever navigated. I have never had any experience on any rivers except these central rivers here, such as I
4087 have named. I have never been on the St. Lawrence, the Fox, or any of the New England rivers. I do not know whether a boat could be run on a river that had a fall of 16 feet to the mile, or one that had a fall of 10 feet to the mile. I have had no experience with reference to
4088 that. The Arkansas river is pretty narrow. In some places it is so narrow that in low water you have to get a yawl down and go ahead and tow it. The river at those
4089 places is from a quarter of a mile to an eighth of a mile wide. The navigable part was about 40 feet wide. There are times when this boat the John H. Harbin cannot go up

the river. That boat only draws about 12 inches light.
4090 You can load her down about between four to four and a half feet. The boat is about 150 or 160 feet long and about 30 feet beam. That is the smallest boat I ever saw on the Arkansas river. Below St. Louis the current in the
4091 Mississippi river runs between six and seven miles an hour. I think a boat can be navigated in a greater current, depending on the power of the boat. My boat can go against a ten-mile current, but I have no idea how many feet per mile of slope would produce that current. From
4092 my view of the Desplaines the other day, I do not think there was over three and a half feet of water at the
4093 shoalest place. I could not tell how many cubic feet of water in the river passed at any one place.

Re-direct Examination.

4094 There is no place below Grafton that I know of where there is a ten-mile current in the Mississippi; the current of that river averages about two and a half miles an hour. I might have navigated water at ten miles an hour, but I don't know.

JOSEPH E. McCULLOUGH, recalled:

4095 In the navigation of swift waters, the depth of the water affects the possibilities of navigating such waters. For instance, in the Mississippi river, at flood time, of course the current is greater, at medium tide it is very much less, and when the river gets low, when it confines the current to small places, between bars and shoals, it is a great deal
4096 greater then, but I would say the average current in the Mississippi at medium stage would not be over two and a half to three miles an hour. If a steamboat comes up out of very deep water onto very shallow water, a stern wheel boat especially, she will pull the water right out from under her, and sit right down on it and just simply quit going at all. If she came up out of 12 feet of water into six, you
4097 would think she would stop. A sidewheel boat will do the same. In shoal water such a boat will not stem at all; she will throw the water right out from under her, and will not steer. The highest current that is navigable in shoal water would not be over four and a half to five mile current.

Cross-Examination.

4098 The speed of the boat is a very important factor in determining whether a boat can go up shallow streams with rapid currents, because the more rapidly you turn the wheels, the more water will be thrown out from under.

ISAAC N. MASON, a witness for the defendant, testified as follows:

Direct Examination.

4203 My name is Isaac N. Mason. I am in my 78th year. My home is in St. Louis, Missouri, where I have lived going on forty-six years. My occupation is that of steamboating, which I began on the Monongahela river in 1846. I commenced as second clerk on the steamer Consul, and then 4204 was first clerk up to 1850 and in 1850 I took charge of a boat running from Pittsburg to Cincinnati and Louisville and then I commenced boating from Pittsburg to St. Louis, run in the Pittsburg and St. Louis trade for several years, then I steamboated from St. Louis to St. Paul several years, one year on the Missouri river. Then I was freight agent for the Northern Line to St. Paul for seven years, then I got into politics as Marshall, Sheriff, and City Auditor at St. Louis. After 12 years I went back to the river and was President of the Anchor Line running from St. Louis to New Orleans for over ten years. That was a line composed of nine large steamers. In the last employment I did not have to have captain's papers, but had them before that time. I never held a pilot's license, but have piloted. I have navigated the falls in the Ohio river, the Des Moines and Rock Island Rapids on the Mississippi, and the Missouri river 4205 from St. Louis to Council Bluffs. Since I ceased to run actively on the river I have kept in touch with river conditions, and have been interested in the problem of deep water communication on the rivers for forty odd years. For the last five years I have been one of the vice presidents of the Upper Mississippi Association, an association interested in that matter, and have given time and study to the problem of deep waterway navigation on the river. In 1892 I was president of the Merchants' Exchange and held an official position on the Board of Trade of St. Louis.

4206 I have seen the Desplaines river, I went down it five weeks ago and I was down to-day (June 4, 1908), from

Joliet to the mouth of the river,—where the coffer-dam is being built. Seeing the river at its stage on both visits, I discovered here and there there were pools of water, the water was slack and then between the pools there was rapid current, indicating that the bottom of the river was rocky, uneven; the current of the water always shows the condition to a certain extent, of the bottom of the river.

4207 Q. Will you state from your observation whether or not in your opinion the Desplaines river from Joliet to its mouth, is a navigable stream?

COUNSEL FOR COMPLAINANT. I object.

The COURT. Overruled.

Exception.

A. The Desplaines river is not navigable and could not be made navigable unless it was slack watered with locks and dams. It would not be navigable for any character of boat used in commerce that I have ever been acquainted with in river navigation unless it was improved with locks and dams.

Cross-Examination.

4208 I came up from St. Louis on the Chicago & Alton road, got off at Joliet this morning, drove in a buggy to the site of the dam, and back six or seven miles to Minooka, where I took a train for Chicago. We drove 25 or 30 miles. I had a good view of the Desplaines practically all the way down, except that here and there were forest trees that hid the view. We went through a little village, I do not know whether it was Channahon or not, and did not cross the

4213 river until we came back. When we landed at the mouth of the river we were on the right hand side of the coffer-dam, that is, on the same side of the Desplaines river as that portion of the coffer-dam that is being built,—next to the canal. In coming down we drove along the towpath of the canal for several miles, and forded a river just before we took that towpath, but I do not know what river it was.

The first four years of my experience on rivers was running from Pittsburg to Brownsville, sixty miles up the Monongahela river. I was first and second clerk, and had nothing

4214 to do with navigating the boat. After that I was second clerk, clerk, and captain on the Ohio river from Pittsburg to Nashville, Tennessee. The service which I rendered then was not the navigating part of the boat, but the business part. I used to pilot once in a while, sometimes for two or

three hours, for exercise, but have never had a pilot's license.

4216 After that, I was general freight agent of the Northern Line, running from St. Louis to St. Paul. I had an office on a wharf boat, but had nothing to do with the navigation of the boats. That service lasted over nine years. After that I was city auditor, sheriff, and city and county marshal at St. Louis. In 1883 I went back to the river and was president of the Anchor Line for over ten years. I had charge of the business end of the work, did nothing with the actual navigation. I have had experience as a master,—during the war my boat was in the Government service with General Grant at Vicksburg, and while there they took my boat and loaded her with ordinance and let my pilots go, and when I was released I could only get one pilot and stood watch from Youngs Point to Cincinnati. I consider myself a thoroughly practical steamboat man.

The falls in the Ohio river have a drop of about thirty
4220 feet in low water, in a distance of less than two miles. When I was in the St. Louis and St. Paul trade in 1857, 1858, 1859 and 1860, I was commanding the boat. I had
4224 two pilots, and my business was the business end of the matter. My boat ran up and down the rapids between Rock Island and Moline. At the Rock Island Rapids, the fall is about 18 feet in about 18 miles, so I have been told. I only know from hearsay. The current in the Rock Island Rapids varies. It varies very much in 18 miles; part of it is ten or eleven miles an hour and some of it is probably only two
4225 or three miles. It is in pools, the rapids is in pools. My boats passed right up and down through that. The greatest slope I have ever passed over in a boat is the falls, at Louisville, Kentucky, in the Ohio river, where there was a fall of about 30 feet in two miles. The boats passed up and down there only in high water, the current in high water would average from six to eight miles an hour. At high water the falls is covered so you couldn't observe the falls at all. I do not know what the slope in the Desplaines river is, nor the speed of the current, but should guess it about 7 to
4226 10 miles an hour. There is places in the Desplaines river where the current is more rapid than it is on the Mississippi river, only for a short distance. I only judge from experience in looking at the Desplaines this morning. It is 43 years since I quit running boats over these rapids in the Mississippi, but I have been over the rapids since that time,

and have studied the matter somewhat in regard to im-
4228 proving the channel of the Upper Mississippi, especially on the rapids,—the Rock Island Rapids. My especial interest was to have the Upper Mississippi improved, the rapids in low water are very dangerous to navigate, and the Government has improved them in such a way they have lessened the danger over 100 per cent. The thing which the association with which I have been identified has been asking, is to make deeper water in the upper Mississippi, and what the Government has been doing is to build wing dams up along Lake Petin, and away up in towards St. Paul, and narrow and deepen the stream.

4229 There are no locks and dams in the Cumberland, the Tennessee or the Allegheny. I have not been on the Cumberland river since 1863, I never went up the Tennessee. The only concern I have had in those rivers is to assist the men who are steamboating there to get improvements.
4231 They build wing dams there to narrow and deepen the channel. There are no locks and dams on the Allegheny. I never was up that river, only to cross it at Pittsburg about 40 years ago.

Redirect Examination.

4233 I got to Joliet this morning about half past five. When I went down the Desplaines river the first time, we crossed four bridges. In high water in the Ohio river, the fall is obliterated, so you can not see any fall in the river, the slope varies with the variation of the amount of water. When I speak of the slope in a river, I mean when there is a
4234 boating stage of water, as in the Rock Island falls, when there is 6 or 7 feet in the channel. The ability to navigate slopes depends upon the depth of the water. A captain of a steamboat has full charge of all the business connected with his boat—I considered myself that I understood the duties of a master of a steamboat thoroughly—When I was master of a boat, the pilots were under my direction and command as captain. My guesses as to the rapidity of the Desplaines are my estimates of the rapidity.

Recross Examination.

4240 The pilot is under the captain's control. If the captain said to go a certain way, the pilot would be ex-

pected to go the way the captain told him, although that might not be the channel.

L. L. WHEELER, a witness for the defendant, testified as follows:

Direct Examination.

My name is L. L. Wheeler. I am 57 years of age, and
4287 reside at Sterling, Illinois. I graduated from the University of Michigan in 1874, and have been following the profession of civil engineer ever since. I was connected with the survey for the northern and northwestern lakes, under General C. D. Comstock, for seven years. I was also employed by the Mississippi River Commission in the office at St. Louis, Missouri, for six years, during which time my duties
were mainly those of conducting general surveys and
4288 preparing data for publication. The Mississippi River Commission was a commission ordered by Congress, consisting of three officers of the Corps of Engineers, one officer of the United States Coast and Geodetic Survey, and three civilian members, having in view the improvement of the navigation of the Mississippi river from the mouth of the Ohio to the Gulf. I had charge of the computing division in the office for a number of years, and prepared the data for the information of the Commission and also for publication. I was not directly connected with any of the field construction of the Commission; I mean by that, with the construction of
levees, bank revetment, grading of banks, and so on.
4289 After leaving the Commission, I came to Chicago to take charge of the survey for a waterway from the lakes to the Illinois river at La Salle, and during the fall of 1888, and to the fall of 1890, I was engaged upon that work. I made surveys of the country from Bridgeport to Joliet with some special surveys along the Chicago river; made also detached surveys in the vicinity of Treat's Island, Sugar Island, Marseilles, Ottawa and other points along the Illinois river. The result of my work was published in a report and the maps were also printed, as a volume. That survey was made under the Engineering Department of the United States Army, pursuant to authority of Congress. Major W. L. Marshall was the engineer in charge of this district at that time. I am the L. L. Wheeler referred to in Major Marshall's report of that survey, I was engaged in the work approximately two years.

I was assistant engineer, had charge of the field work,
4290 and had occasion during that survey to make surveys of different parts of the Desplaines river. After finishing that work, in the latter part of 1890, I was put in charge of the location and construction of the Illinois and Mississippi Canal, known locally as the Hennepin Canal, by Major W. L. Marshall, who was then in charge of the Engineering
4291 District, and that canal is in the Engineering District of the canal. I have been engaged in that work ever since, nearly eighteen years. I am still connected with the Hennepin Canal, having in charge the care and operation of the whole canal, under, of course, the officer of the Engineering Corps of the United States Army.

The Hennepin Canal leaves the Illinois river near Bureau Junction and runs nearly due west to the Mississippi river at the mouth of Rock river, perhaps three miles below the Ctiy of Rock Island. It is supplied with water by a feeder which leaves Rock Island at Sterling, Illinois. The entire length of the canal is 75 miles, the feeder is a little more than 29 miles. The width of the canal prism is approximately eighty feet at the water line, and the depth seven feet.

4292 There have been built a great many miles of earthen embankment in that canal. Quite a good many miles are exposed to the action of water on the outside and others are exposed to water action on the inside. The first section that I built was at the lower rapids of Rock river, near Milan, about opposite Milan, Illinois. At that embankment, when the north embankment has high water, Rock river comes against it throughout its length, four and a half miles practically. For 4,500 feet, however, of that distance, the canal was built by parallel embankments in the bed of the river itself, in which the river was against one embankment on the north side and a large creek, Mill Creek, against the south side at the south embankment. Those embankments were built in 1893 and 1894, and are still standing. There are other places along the canal where the high water from the rivers or streams comes up against the outside of the embankment. The
4293 main body of the embankment consists of earth which was brought out in cars and dumped. The outside and inside slopes are rip-rapped with broken stone, stone as it came from the quarry. The width at the top of the bank was, I believe, twelve feet. The slope of all the banks in the earlier construction was one and one-half horizontal to one vertical, but down in the cross-section—I have a typical cross-

section, and the outer slope of the north embankment is not over two to one horizontal. I could not say to my recollection whether or not that is two horizontal to one vertical. It could not be steeper than one to one-half. The cross-section marked "Wheeler Exhibit One" (Atlas, page 3977; Appendix, page .....) and now introduced in evidence, and which purports to be a cross-section of the Hennepin Canal below the mouth of Mill Creek, opposite Milan, Illinois, a point where the canal is built in the bed of the river, with the em-
4294 bankment on either side, correctly represents the situation at that point.

4297 Said map was received in evidence.

Objection.

The letters and figures "H. W. 135" on the mound on the left on said map means the elevation of the high water in Rock river in reference to Hennepin datum,—135. The line below that, marked "L. W. 126" represents ordinary low water in Rock river referred to the same datum. The water shown at the left of the left embankment, which appears at the left of the exhibit, is the water of Rock river; the water between the two embankments represents the water surface here carrying the exact level in that level of the canal. The "W. S. 131" marked on the top line is the base of the slope surface. The other elevation there shown is the bottom elevation, the elevation at the lock in the bed of the stream.

4298 The letters "W. S." mean water surface.

The right half of the exhibit "H. W." represents high water in Mill Creek, and "L. W." represents low water on that side. I would like to qualify my testimony in regard to those two elevations at that point by saying that the slope of the creek is quite steep, and according as you move up or down stream, usually the low and high water elevations will vary. That is typical of that vicinity, however.

The high water line of the Rock river comes within three feet of the top of the embankment, and the high water line of Mill Creek, on the right of the exhibit, is shown as two
4299 feet from the top. Mill Creek is a stream whose greatest area lies mainly in a country of deep slopes. At low water it is practically dry, and at times of heavy rains, it comes out with torrential force. The measurements that we made while engaged upon that work show that the maximum flood might be expected of ten thousand cubic feet a second, and the slopes are so steep in the drainage area that floods

of that volume might be expected from perhaps five to eight hours after the rainfall.

COUNSEL FOR DEFENDANT. How wide is that creek between banks?

COUNSEL FOR COMPLAINANT. I object to it, your Honor, as being irrelevant and unimportant.

The COURT. He may answer.

A. The width would vary. Some places it is quite narrow, but I would say generally from fifty to one hundred feet. In places it overspreads the adjacent country.

COUNSEL FOR DEFENDANT. What is the size of Rock river at that point, its width and depth?

4300 Objected to as incompetent; overruled.

A. It is a large stream at this particular point. It is divided into two channels, by islands. The channel on the south side at that point represented by the cross-section, would be perhaps 800 or 900 feet wide, and the channel on the other side perhaps 400 to 500 feet.

COUNSEL FOR DEFENDANT. What is the usual depth of water in that river at that point?

Objection; overruled.

A. That is situated on rapids, and at times the rapids are entirely backed out by high water from the Mississippi so that there is a considerable depth of water there. In times of flood there is considerable depth, but in ordinary stages the water is quite shoal, perhaps from one to two feet in
4301 that vicinity. In times of high water, there is perhaps nine or ten feet of water against the bank there. The maximum flood in the Rock river at that point I have estimated as 65,000 cubic feet per second. I suppose the maximum discharge of the Desplaines river at Joliet is approximately 13,000 to 15,000 cubic feet per second.

The two earthen embankments which were constructed at this point, opposite Milan, Illinois, were constructed of earth excavated immediately above on the south shore of Rock river and the earth consisted of black sticky prairie soil, underlaid by yellowish clay, and underneath that some gravel and boulders lying on top of limestock rock. The earth was loaded on cars and the embankment built with it, the stone used to riprap the outside of the embankment, and the embankment generally on that section of the canal. The stone, I think, came from the quarry, and was dumped from cars on the slope; it was not placed by hand at all, either on the outside and
4302 inside slope, on each side of the embankment.

COUNSEL FOR DEFENDANT. How does the material of which these embankments of the Hennepin canal are constructed compare as to durability and impermeability with the material of which the towpath bank is constructed at Dresden Heights?

Objection overruled.

I should say that the material of which the towpath of the Illinois and Michigan Canal is constructed, for three or
4303 four miles above the works at Dresden Heights, is of better material for a water tight embankment than the material used in this embankment in the river at Milan. I have inspected the material in the towpath bank at Dresden Heights. I know there has been no impairment of those embankments. They stand to-day as they were left fourteen years ago. I saw them last Saturday. Muskrats or other vermin have not committed any depredations so as to impair them.

4304 The rip-rapping done upon these embankments in the Hennepin Canal near Milan was loose stone dumped on the slope. In my opinion rip-rapping which consists of stones of various sizes dumped on an embankment, furnishes a much better protection against the wave wash and other action of water, than of stone of comparatively uniform size laid by hand, in a way that is commonly termed "sloped paving." In case there is any washing away of the material underneath, the loose stone settle down at once and remedy the trouble, and in "slope paving" it often happens that the waves will run up the slope by the winds, go through the interstices and, coming back through the material underneath, bring it out at the foot of the slope. At Lincoln Park the slope paving is one example of that. I have had several examples of that on my own work where slopes in front of bridge abutments were paved in that way and difficulty has developed; but where the slopes have been protected with loose stones, dumped haphazard upon the bank, very little trouble is experienced. On the feeder of the canal, 22 miles on one side and 19 miles on the other have been protected by rip-rapping in that way. Of the four and a half miles of canal at Milan the outer river slope and the outer slope adjacent to the creek, and a
4306 large part of the inner slope of the canal were protected in that way and the protection has stood there 13 or 14 years without any damage. It is on what I have actually observed that I base my opinion that the loosely dumped stone,

rip-rapped, forms a better protection against the action of the water than the so-called "slope paving."

I have been at Dresden Heights since the proposed dam of the Economy Light & Power Company was commenced, was there in April this year. I somewhat examined the towpath bank of the canal above the dam, drove along it from Channahon down to near the site of the works and walked the remaining distance along the towpath. In quite a number of places I examined the inside slope of the bank, in the canal. I observed the work that had been started by the Economy Light & Power Company. I noticed a berm on the inside slope of the bank. I judged from its appearance it was formed partly by the action of the water washing the bank away, and partly by the bumping of rip-rapping and stone which was below the water surface at the time I was there. The rip-rapping below the water line I could not see, but I used a stick and found stone beneath the surface of the water. There was work there recently dumped on that berm for a considerable distance above the power station. I had no means of telling whether it encroached below the water surface, but this line at the water surface would indicate that it did not encroach upon the prism. At one place they had encroached to a little extent to obtain the foundation or support for a hoisting engine. I suppose it was temporary, I should say it went out 5 or 6 feet into the water line, perhaps 15 or 20 feet long.

Q. I show you two blue prints, one that has been marked "Cooley Exhibit 28," one that is marked "Plan of Dam May 20, 1908," purporting to represent some construction work here,—have you examined that?

A. I have seen both these plans and was furnished with a copy of this one marked "Cooley Exhibit No. 28."

Q. If a pool of water should be formed by the construction of the dam and works,—in the Desplaines River, shown upon these two blue prints, in the manner here shown, at the point where you have seen the commencement of work at Dresden Heights, what effect, if any, in your judgment, would that pool have upon the towpath bank against which it would flow?

4312 A. One effect of raising a pool of water against the outside of the embankment would be to reduce the hydrostatic head upon that embankment by the amount of the water raised up against the bank of the embankment. Another effect would be that the action of the waves might, and probably would, in time, eat into the embankment a certain

distance. One of these changes would be to make the bank more safe, and one would be to make it more unsafe.

The term "hydrostatic head" is used to express the pressure of water in a quiescent state, and the measure of that pressure would be the difference in level between the water on two sides of any partition. At present at low water
4313 the tow of that embankment generally is dry and the effective pressure is that due to the difference between the level of the ground at that place and the water level in the canal. If the water on the outside was brought up to the level of the water on the inside, then there would be no pressure upon the canal embankment, tending to displace or destroy it.

I believe that it would be entirely feasible and practicable within a moderate limit of cost to protect that embankment from any injury which might result from the formation of such a pool, by simply rip-rapping stone upon the opposite slope, at such time and places as time showed as necessary.

Part of that bank is already rip-rapped on the outside in places, probably that rip-rapping would be sufficient. Where the embankment is immediately adjacent to the river bed rip-rapping would be needed sooner than in the upper portions where it is not immediately adjacent. The outer bank is quite well protected by trees and brush now. In my judgment the proper thing to do would be to let time tell how far up it would be necessary to continue the rip-rapping. The wave action on that embankment I feel satisfied would be very slow.

4315 I noticed there were quite a number of animals digging holes into it and bringing material out. I suppose they were woodchucks. I don't remember seeing any crawfish, I presume they were there; I don't remember seeing any muskrats, or indications. The formation of the pool would prevent the depredations of woodchucks below the pool level. I suppose that muskrats would endeavor to burrow along if they found a suitable place. Rip-rapping is a pretty thorough protection against rats. It would be feasible and practicable to maintain the bank, after rip-rapping, against muskrats.

The bank would be saturated of course, below the pool
4316 level. The saturation line that would be dangerous to an embankment, would be that from a higher head of water. Experiments have shown that there is a saturation line in embankments descending from the water level down

through the embankment, and it is considered that the dimensions of embankments should be such that it always covers the saturation line. In that particular case, it would be the saturation line from the inside, which would be an element of danger, and that would not be changed as I can see by the raising of the pool on the outside. In my opinion, the formation of the pool at this point by the work shown upon these different blue prints would not cause saturation which would give any more element of danger, if it were rip-rapped in the manner in which I have described, than that cause.

4317 I remember the Adams Dam in Joliet. It was in existence when I was making the survey in 1888 to 1890. I am somewhat familiar with the conditions which existed at the point where that dam was, and the condition of the river and the canal bank.

COUNSEL FOR DEFENDANT. Will you state briefly what were the conditions there with reference to the embankment being flowed on one side by the river and on the other side by the canal, if you know?

Objection.

A. I recollect the Adams Dam, and the way it came over towards the canal bank; I have no recollection, if I ever knew, and I do not just remember how the Adams Dam connected over on that side. I was under the impression that there was some structure in there.

COUNSEL FOR DEFENDANT. Assume, colonel, that this map which I show you, and which I will mark Woerman Exhibit, June 8th (Atlas, 3978; Appendix, page .....), shows a correct representation of the cross-section of the embankment at the point where the Adams Dam was; and assume, also, that the other cross-section at the point where the proposed dam is being constructed is correctly represented; and state whether or not in your judgment there is any greater danger to the canal bank at the point where the Adams Dam was by reason of the water in the river flowing up against the bank than there would be to the towpath bank near Dresden Heights if this pool should be formed by the construction of the Adams Dam.

COUNSEL FOR COMPLAINANT. I object, because the exhibit and the assumption to which his attention are directed start with that proof; and, secondly, if proved are silent on the points of difficulty and do not convey the information as to the controlling condition.

The COURT. He may answer.

4320 A. I should say that there is no material difference in the danger from the river itself on that side. The embankment as proposed at the site of the proposed work has a wider base than the other, which would be an element of safety; but from the action of the river itself I could not say that there would be any particular difference between the two. I don't recollect that I noticed whether the bank at the point where the Adams Dam was had been impaired in any way by the action of the water in the river at the time that I saw it. I do not remember that the embankment had a vertical wall on the canal side.

I am familiar, to a limited extent only, with the high water conditions of the Desplaines River,—not since the waters of the Sanitary District have been turned down the channel. Prior to that, and during my surveys, I made investigations in regard to that matter. In my opinion, the pool formed by the construction of this dam could be adequately controlled by the gate shown upon the blue print which I have examined, and by the spillway and general construction there, so that the canal bank would not be overflowed, and, in my opinion, the plans there provide for a sufficient control of any maximum flood likely to occur in that river.

4321 COUNSEL FOR DEFENDANT. In your judgment, would there be any necessity for the adequate protection of the canal bank to pave the top of the towpath bank or pave the inside of the bank?

Objected to as leading and suggestive. Overruled as directly and specifically rebuttal.

A. I do not believe it would be necessary to pave the towpath on the upper surface; the only reason for paving it would be to care for the travel over it of teams and vehicles, and the material of which it is composed is already firm, good, solid material, and make a fair roadbed surface now.

I am familiar with the old Kankakee feeder that crossed the river above the point where this dam is to be con-

4322 structed, I have been there and been a short distance up the feeder, perhaps a mile and a half, or such a matter. I have made an approximate estimate of the cost of the reconstruction of that feeder as a navigable feeder, and the connection with a reconstruction of the aqueduct across the river, entering the canal, also an approximate estimate of the cost of reconstructing the feeder, with a connection between the south side of the river and the canal by an inverted siphon

and guard locks for navigation across the pool of water that would be formed by the construction of this dam.

COUNSEL FOR DEFENDANT. How do these estimates compare?

Objected to as irrelevant, incompetent and immaterial, and because there is no foundation for it in the testimony of this witness; overruled.

4323 A. I estimate that for the purpose of carrying navigation across the river on the level of the present feeder, the building of the aqueduct, including new concrete piers, steel trusses and floor system, and reinforced concrete sides and bottom, would cost approximately $65,000. The cost of the necessary guard locks on the north side of the river will cost $10,000, making a total cost of $75,000. Under the alternate project of carrying navigation across the river and supplying the canal with water through an inverted siphon under the river, the cost would be as follows: Pipe, 6 feet in diameter, 752 feet long, would cost $4,904; excavation for placing this pipe, 1,800 cubic yards at $2.00 per cubic yard, $3,600; coffer-dam and necessary pumping, I estimate would cost $10,000; two locks, one on each side of the river at $20,000 each, $40,000; making a total cost of that project of $58,504.

4324 I have had occasion to construct inverted siphons and guard locks in my work, and am sufficiently familiar with all kinds of work in those estimates to say that they are approximately correct. I do not believe there would be any difficulty in feeding the Illinois and Michigan Canal through an inverted siphon from the Kankakee River, by an inverted siphon placed under this pool of water which would be formed by the dam at Dresden Heights. Both at the present time, and after the construction of the proposed dam it would be safer construction to carry the water through in a pipe and have two locks on the shores. I am sure there is depth of water enough in the river now for that, for the depth of navigation carried in the Illinois and Michigan canal. That would be the safer construction and probably cheaper. If, however, the pool had to be raised, it would be very much preferred.

COUNSEL FOR COMPLAINANT. It is understood, your Honor, that this entire proposed project for fitting up a new—is objected to.

THE COURT. Yes.

COUNSEL FOR COMPLAINANT. It won't be necessary for me to repeat it.

The COURT. No.

4325 A. I do not believe it would be possible to build an aqueduct across the river there at the present time before the formation of this pool without interfering with navigation on the river, except for boats low enough to pass under it. I do not believe it would be possible for any boat to pass under the aqueduct, the aqueduct reconstructed across there as it was before it was abandoned during high water stages of the river.

Q. How familiar did you become with the river, the Desplaines River, during the two years which you were engaged in the making of the surveys under Captain Marshall?

A. In that portion of the river above Joliet, up to Summit, I have been along that many times, camped along there
4326 while surveys were in progress. Below Joliet I went down a number of times, went through the river in a skiff, and have also been down the canal in a boat,—that was in the fall of 1888 and during the summer of 1889. During the fall of 1888 the river was very low and my men and myself crossed the river back and forth below Sag Bridge, a short distance below. Above that point there was considerable of a pool and we had to either cross on the bridges or use boats. In the spring of the following year there was a considerable flood in the river. I do not remember that I was below Sag Bridge during that period. Below Sag Bridge, we crossed a number of places by simply going from stone to stone, without having gotten in the water to get our feet wet.

Q. How long a stretch of the river was it that you did that in?

A. I think that we had shoal places here and there, ripples, that we went across on. One place was near the present site of the controlling works of the Sanitary District. The river was very shoal there, very little water flowing that fall in the Desplaines River. I saw other portions of that region
4327 in flood the following spring. I had parties in the field, but I do not remember that I ever saw the portion in the vicinity of Lockport in flood. I was down the Desplaines from Joliet to the mouth a number of times during the years 1888 to 1890 inclusive. I passed through the river in a skiff. I purchased a skiff in Joliet and took it down below the Adams Dam, went in the canal, then hauled over the canal embankment into the river and passed down the river as far as La Salle. There were with me two men and a small boy,—besides myself. In same places part of the crew were put

ashore to let the skiff over the rapids. We had to drag the skiff to get over the rapids. There was one place soon after we went into the river that we were aground, and we fooled around and managed to get out at the head of Treat's Island. We ran onto boulders and partly capsized, and found other places with pretty swift water; pretty swift water in the vicinity of the present works at Dresden Heights.

4328 I did not observe the rapids at a place called Smith's Bridge. The river was rapid at the mouth, but I do not remember of having seen boulders at that place. At Brandon's Bridge there seemed to be several channels and gravel bars, the bed of the stream apparently composed of gravel and boulders, and we worked our boat through those until we got down to Lake Joliet. That trip was made some time in the month of July; I could not fix the exact date. The Bridgeport Pumping Works were in operation at that time, but I do not know how much water they were discharging into

4329 the Desplaines River at that time. There were rapids for a little distance below the mouth of the Desplaines River, I don't remember any difficulty in navigating them in my skiff,—we camped on the south shore when we had reached the foot of the rapids. I went down there in that vicinity several times, at other seasons during those two years. I have had some experience in connection with my engineering work in the navigation of boats, on the Rock River, also some on the Mississippi River and some on the Illinois River.

Q. State whether, in your opinion, the Desplaines River was capable at the time you saw it, or during the two years in which you became familiar with it—was capable of any season of the year of being used for useful purposes of commerce.

COUNSEL FOR COMPLAINANT. I object. It calls for irrelevant, incompetent and immaterial matters, for which no foundation has been laid.

THE COURT. He may answer.

4330 A. I should say that it was not navigable for commerce carried in boats. It might have been used in times of higher stages for floating logs or timbers down stream; nothing very well could come up stream. I am not very familiar with the Desplaines since the draining flow has been turned in. I have crossed it at Joliet and been down to Dresden Heights. I think the river would not be capable of practical navigation as it was during the two years I saw it in 1888 and 1890 for two reasons, first, on account of the low,

small volume of the discharge, and second, on account of the steep slopes at places. The high water season or wet season in this river, from my knowledge of it, is very short, that is that the maximum at the high stage would not last more than a couple of days, something like that. The course of
4331 the stream between Joliet and the mouth was quite crooked in places. I do not recollect that it would have been so crooked as to interfere with navigation.

The maps that were made of the Desplaines River that were published in connection with the Marshall report, were made under my direction in my office.

Q. Colonel Wheeler, state whether or not in your opinion the Desplaines River was capable of navigation for useful purposes of commerce, or would have been capable of such navigation even if dams had not been in the river?

Counsel for complainant objected on account of lack of qualification on the part of the witness, and irrelevant, incompetent and immaterial.

The COURT. He may answer.

A. In my opinion it would not have been navigable on account of the steep slope.

I have some familiarity with the effect of wave wash on embankments.

Q. State whether or not if this canal bank above the site of the proposed dam were riprapped, properly riprapped—state whether or not the wave wash caused by the wind
4334 on the pool to be formed by the construction of this dam, or caused by the action of boats in navigating that pool, would have any injurious effect upon the bank?

A. My understanding of that question is that if the bank is properly riprapped, will there be harmful action due to wave wash or wash from steamers?

Q. Yes.

A. I should say not.

COUNSEL FOR DEFENDANT. That is all.

Cross-Examination.

4335 As to whether I was the man in immediate charge of the construction of the Illinois and Mississippi Canal, ordinarily called the Hennepin Canal, I have been in charge of the construction of a large part of it, been at work on that from the time it began, now am in charge of the operation and care of the whole canal. Yesterday, I said where its ter-

mini were, and where the feeder started from in the Rock River. The canal leaves the Illinois River near the station at Bureau Junction on the Rock Island road and extends nearly westward to the Mississippi River, at the mouth
4336 of Rock River, a distance of 75 miles. The summit level of that canal is north of Sheffield and the summit level is supplied with water from the Rock River at Sterling by means of a navigable feeder 29 miles long. The feeder and the main line of the canal are of the same dimensions, 80 feet wide on the water line with 7 feet depth of water. The locks have chambers 35 feet wide, and 170 long. I commenced the location for the construction in November, 1890, at Milan, but on account of some legal difficulties the actual construction was not commenced until in 1892. There is some work to do on it to finish it. It was so far finished that it was opened for navigation last fall, October, 1907.

Q. Do you remember a report made to Congress about 1895 in which the engineers stated that at the rate of progress which was being made on that work the first half would have gone to decay before the last half would have been completed and the work opened for use?

A. I cannot say that I remember such a statement in the report, but I have known of such a statement being made.

4337 The banks are imperishable material. That was damaged due to storms and rains, and was not for any excessive amount. At that time, however, the rate of progress upon the canal was very slow on account of the failure of Congress to appropriate the money for its construction.

4340 As to whether it is not a fact that the canal banks of the Hennepin Canal did suffer from attacks of vermin very greatly during the construction of the canal, a great many burrowing animals made their home along the right of way and no systematic effort was made to drive them out until last year, when we approached the time when we were ready to turn water in the canal. Then a very systematic campaign was waged against them during the last year, and they were killed in large numbers. A considerable sum of money was expended in exterminating them and taking their holes out, but it did not delay the opening of the canal in any way. I mean that I got at the work of restoring the banks long enough before the time for opening so that I had
4341 the restoration done by the time for opening arrived. I had several serious difficulties, but that was a precau-

tion which we found it necessary and advisable to take, to examine the banks throughout the whole length, and wherever burrowing animals were found in them, to kill them and
4342 take the holes out. It is a fact that the muskrats in their depredatious work in the immediate vicinity just above and below the water line where the water attacks a bank. I would not say that is also true of crawfish. I never saw crawfish holes of from two to two and a half and even four and five inches in diameter, and sometimes from two to four feet long into an earthen embankment, so that those holes will be partly below and partly above the water line.
I think I have seen a crawfish hole two inches in diam-
4343 eter. I doubt if I have seen one three inches in diameter. As to a crawfish hole two feet long, I have no doubt that many of them are even deeper than that. I would not say four feet long, but I do know that they go down in the ground quite a distance. I haven't much doubt that they frequently make holes four feet long. Well, the crawfish holes that I have seen are vertical. The object of the animal is to go from the surface of the ground down to where he finds water. I suppose he will keep going until he gets it. As to it being a place of lodgment for them to run, and that they go by a slanting line with a minimum depth, I don't
4344 know that. The dimensions I would give for the crawfish mounds that I am personally familiar with would be about, perhaps, six or seven inches high, and two inches in thickness surrounding the holes, and possibly more than that.
The line of the Hennepin Canal lies in the bed of the Rock River, opposite Milan, about 4,500 feet. It goes into Big Island and then goes down through Big Island to the mouth of Rock River. Rock River just at Milan divides into two main branches which form two sides of a large triangular island, of which the Mississippi forms the third side, and
4345 that island, of some several thousand acres of land, is called Big Island. There are three or four other small
4346 islands, I would not say at the head of this island, but they lie over north of the upper end of Big Island, and extend up stream perhaps two miles, or nearly that, a mile and a half.
Black Hawk's watch tower overshadows as we go down on the north side of the river just opposite this 4,500 feet. Black Hawk Tower is on the north shore bluff, and from that this work can be seen in the river-bed. Black Hawk's watch tower,

I don't recollect the height, I haven't measured it, I should say is perhaps 125 feet above the water. For a short distance up stream, the bluffs recede from the shore line of the river and the bluffs terminate a very short distance below Black Hawk Tower.

There are immediately adjacent to the river for perhaps three-quarters of a mile, lofty bluffs, and then further
4347 back with farms lying between the foot of the bluffs and the river. From the river when you get up as far as the Moline bridge, they are much more than 80 rods, and on the south side of the river, the bluffs are from half a mile to a mile away from the river, with a broad bottom land on the south side of Rock River between the river and the bluffs. At the vicinity of this work, for several miles along there, Mill Creek comes down through and floods the broad bottom lands over a mile wide on the south side of the river. It comes in from the south side, but not through marsh lands, and it is not a small creek. It comes through about a
4348 mile of bottom land, which, however, is not level. There is a fall of about 20 feet in that mile, that is from the bluff road that skirts the edge of the bluff on the south side of the bottom lands. There is a broad space of bottom land on the south side. Immediately abreast of that on the north side, is where the bluffs terminate, and adjacent—that is where they terminate as to the shore of Rock River, and the river flows straight west from the east to a bed of solid rock, and the river divides out between Milan and Searstown; so that, while it has got these two main branches, it also has several minor channels which enclose Vandruff's Island
4349 and the other small islands, and there is no water power dam at Milan at the present time. There was one before I began work, which had been built by the Rock River Water Power & Navigation Company, and which had been washed out. I could not fix the year it was destroyed. I believe it was nearly destroyed at the time I made the survey. I think when I first went there, they were still using some power from it, and by the year 1894 it had been entirely washed out. Perhaps I should correct that; I would not say entirely washed out, but washed out enough so that it did not yield any power.

The Rock River Water Power & Navigation Company had constructed a small canal on the Searstown side of the river long before I began work as a part of that water power and

navigation work. I did not interfere with that in any
4350 way. The location was on the south side of the river, and the river runs straight west from the east, for a distance of some five miles there. These two dikes referred to were built lengthwise in the Rock River near the south side of Rock River running parallel with the bank of the river and with the current of the stream, and there was no dam at their foot that had to be calculated for in the construction of these dikes. There is none now, and they run down into Big Island and the canal is extended right straight down through Big Island to the Mississippi River.

I was last at Dresden Heights some time in April of this year. I was there one day only. I started from Chi-
4351 cago to go that morning to Dresden Heights. I went to Minooka by rail. I think we left the depot here about seven o'clock, or shortly after, and arrived there shortly after eight. I may be mistaken in that, but it was in the morning between eight and nine o'clock. Then I took a carriage from Minooka. We drove to Channahon and then on to the canal towpath and thence down to the house just about this work in progress. The length of time it took to drive over there was, I should say, somewhere near an hour and a half. We
4352 stopped at quite a number of points along the canal embankment. I came back the same day by the same method, got home to supper in Chicago, between six or seven o'clock. We were at and around Dresden Heights a portion of the day, taking so much as was necessary of the forenoon to get down there and so much as was necessary of the afternoon to get back. Mr. J. W. Woerman and Mr. T. D. Johnson were with me, nobody else. I have not been there since. I had been there before. I had been down to Dresden Heights in 1888 and 1889 when I was making this survey.

4353 I had not been there between those times. Then my knowledge of the situation down there so far as it is derived from personal observation was derived in this portion of the day in April when I made this trip, together with my observations that I made there in 1888 and 1889. My knowledge of any recent work was derived from my observation on that one day, and a study of the plans together. I had access to the plans, and made some study of them in connection with my observations.

Q. In your answer about this work, you have taken into account what you learned from that examination and from

your study of the plans as well as what you learned from
4354 your personal observations on that day?

A. Yes, sir.

Objected to because the questions were based merely upon two blueprints that were handed to the witness and his answer stated that they were based on them.

COUNSEL FOR DEFENDANT. I understood the form of that question—the objection was sustained to the form, the court saying that he could ask the witness what his answers were based upon.

The COURT. No, he don't have to ask him directly. He may ask him indirectly on cross-examination.

COUNSEL FOR COMPLAINANT. Q. You say, Mr. Wheeler, that you poked around with a stick down there?

The WITNESS. Referring to the picture that was shown me in the direct, Woerman Exhibit, June 8th, I think I said I could not see what was under the water. I don't think I said that I could not say what was under the water, because I was positive that it was stone. As far as I could poke with
4355 a stick in places, the water was not transparent. I poked around with a stick here and there at points where I was walking along and the berm offered an opportunity for me to step down; some places there were stones that I could step on. There was no effort made to examine the whole length from Channahon down, but only at occasional points. We got out of the carriage several times going down there, and then we left the carriage at that locktender's house and walked from there to the site of the work. We got out several
4356 times, more particularly to examine the back of the bank, when we were in the carriage. When I speak of the back of the bank, I mean the side towards the river. Before I got down to the locktender's house, I don't remember for sure whether I made that kind of an examination at times when I got out from the carriage. I know that I did several places afterwards. I did at several points, after I left the towpath walker's house, poke with my stick down into the canal water and feel the stones. I would not say twenty times, very considerably less than that. Perhaps half a dozen times where the berm afforded a footing for me
4357 to go down on it and make that exploration. The berm on that day was mainly out of water. It was a nearly horizontal shelf. In some places where this recent work had been in progress it was covered with stone slanting upward to the top. I did not make an examination at those points.

My examination was made where there had not been any stone filled in on the berm. Whether that berm was one which had been constructed as a part of the original construction of the canal, or had been formed by the operation of nature upon the banks after it was left from the different natural forces, waves, wave wash, frosts, rains, weather, I could not say positively, but I judged from the appearance that it had been formed through the action of the elements.

I will qualify that. Its width might have been increased
4358 by stone dumped on the inside below that level, but the appearance was what we call a natural berm as distinguished from an artificial berm, meaning by natural berm, one that has been made in the process of time. With a bank which is not furnished with artificial berms in the construction to start with, or with artificial protection to prevent berms, there will form a berm by natural operation of the water in the banks of the canal, and the berm would take the form of the berm that you found down there, and that you would find here on this Woerman Exhibit of June 8th, if that pink paint on the canal side and the stone that represented by it were not there.

4359 There would be a horizontal shelf there nearly at the water line edge, and the material which had been formed in the slope out of the operation of the waves and other natural causes would have gradually slid down the bank to the bottom of the canal. I would not say necessarily that it would slide down to the bottom, but slide down part way. It would be stretched along down the slope below the water, and in process of time would make an indentation in the bank at the point where the berm is and the filling in there below that point. That is the natural operation of the water on any such bank, and that would be the tendency of this bank. And that would go on until the berm had gone in deep enough and the slope below had become low enough so that the material would then cease to slide. It would reach a position of equilibrium, probably in time, and I found some places along that canal where this berm projected out between five and six feet.

4360 The dimensions of the Illinois and Michigan Canal at that point are 60 feet water line and 6 feet deep. It may be silted up very much for all that I know, but that is the standard dimensions fixed for that work. I think 6 feet deep is the depth on the miter sills, indicated to us now. I don't know how deep it was there. For any given depth of water

I can tell you what the hydrostatic pressure is, but it does not depend upon the width of the stream. It makes a
4361 difference whether you ask at the top of the slope or at the bottom of the slope. If you were at the water line there would be no pressure, and as you went down and the depth increased the pressure would increase 62½ pounds per square foot—62¼, more nearly,—at a slope of two feet to one, that is two feet on the horizontal and one foot down vertically. The pressure would be 62½ pounds per square foot in every direction. The slope would form the hypothe-
4362 nuse of a right angle triangle there. On the diagonal, the pressure would be 62½ pounds to the foot at a point one foot below the surface. One foot on the diagonal or one foot vertically, it would not make any difference in which direction it takes that plane there at that point, the pressure is equal in all directions, the hydrostatic pressure. The pressure at a point two feet down that slope, a square foot down there, extending from a point two feet down to a point three feet down on the diagonal, would have to be computed. It can be computed. The pressure will vary from point to point as you go down, but at a foot from the surface it would be 62½ pounds, and at two feet from the surface it would be twice that. At three feet it would be three times that, but it is varying and if you ask for the pressure on a foot that extends, say from two feet down to three feet, then it would
4363 have to be computed as an average between those two. It would be just the same whether the direction were given diagonally or vertically so long as the edges were that distance from the surface. The pressure at that point would be the same as if you would measure that diagonally and take the pressure at that point, provided you get the same distance below the surface on a vertical line. A common
4364 graphical representation of that pressure is a triangle with the apex at the surface of the water and the vertical side of the triangle represents the depth and the horizontal distances in that triangle represent the pressure at any given depth. Now, if we should take a certain area at a certain depth it would be represented, the total pressure on that, by the area of the triangle between two lines, horizontal lines, drawn from the vertical line at the given
4365 depth. If this is a foot, the pressure on the upper edge is represented by this line (indicating), and on the lower edge by that line (indicating). Now, the ratio of those two sides at this latitude is approximately 62½ pounds. The

hydrostatic pressure at the depth of four and one-half feet would be approximately 280 pounds per square foot. For four and a half feet in depth with a slope of two horizontal to one vertical, the hypothenuse would be approximately ten feet. The total pressure upon that inclined slope per lineal foot of slope would be represented by one-half of the pressure at a foot multiplied by the area of one foot of slope or the product of ten multiplied by one-half multiplied by 280, equals 1,400 pounds. If the elevation of the water in the river were such that the top of the water in the river pool were on a level with or below the bottom of the water in the canal, the pres-
4366 ence of that pool of water in the river would relieve this bank by whatever pressure there was on the embankment due to the fact that the water percolates or seeps through the embankment, and partly saturates it. Experiments have shown that there is a saturation line in the embankment that has water against it on one side and the back of the bank is exposed to that hydrostatic pressure as well as the front. Now, in figuring the pressure on a bank of that kind, I would not take the depth on the front angle, but I would figure that depth to toe of the slope on the outside. There will be sat-
uration and percolation of water running from the canal
4367 and seeping through all the way down to the toe on the opposite side. It may not go to the toe of the bank; sometimes it does go down and lays there, and the presence of a pool on the other side, although it don't come up as high as the bottom of the water in the canal, still would operate as a relief and support to the bank. There would be a saturation from the river side up to that level. The force of saturation would operate from the river pool in the same way proportionately to the amount of water within that it operated from the canal bank proportionate to the amount of water there, but it would be an element of danger if the water surface on the outside of it was higher than the water surface on the inside.

Q. Wouldn't it be so if the water reached the level of the bottom of the water in the canal?

A. I do not consider it so.

Q. You think that it certainly would when it reached the same level on both sides?

A. No, I would say then that the embankment was
4368 in a condition of absolute safety, by reason of the fact that the pressures were alike on the two sides. The pressure not necessarily operates by means of saturation.

It might be an impermeable bank, it might be a masonry bank, as far as that is concerned. It would depend on the saturation line, some kind of earth would have a different saturation from others, but with the water level on—at the same elevation on the two sides a bank of any material would be safe as far as pressure is concerned.

Q. It is not true, Colonel, that whatever danger there might be from saturation when it reached the danger point would be increased when you put saturation on both sides?

A. I do not consider it that way.

Q. The court asked you, Colonel, whether the pressure would be the same on the bank where it was substantially vertical, as in the picture, the upper picture, Woerman Exhibit of June 8th, that is on a slanting bank which is shown in the lower picture. What was your answer to that question?

A. That per square foot of area the pressure is the same at the same depth. If the court means, however, by his question, tending to move that bank horizontally, then I
4369 would say that the pressure is exactly the same at whatever angle that slope lies.

Q. Then the pressure being exactly the same, the pressure would be the same in the two banks, per square foot?

A. At the same depth in a horizontal direction.

Q. Then if the bank was made vertical, as it is in the upper picture, the number of square feet to which that pressure would be applied would be considerably less than where the bank is on a diagonal of two to one, would it?

A. Well, there are more square feet on the inclined slope but the pressure is reduced horizontally to exactly compensate for that slope.

Q. Then the statement that it has the same per square foot is a mistake?

A. No.

Q. You said a moment ago that the pressure would be the same per square foot.

A. At right angles to the surface.

Q. No matter at what angle to the bank. Now, you say that if the bank is made slanting the pressure per square foot will be reduced exactly enough to compensate for the increased number of square feet?

A. No, you confuse my answer.

Q. Put it straight.

A. I say that the pressure horizontally will be reduced in exactly the same proportion that the area is increased,

by that slope, so that the total horizontal pressure will
4370 remain the same whether the water presses against the inclined slope or a vertical one—

Q. But not the same per square foot because the number of square feet had been greatly increased, had they not?

A. There is a difference between the unit of pressure and the resultant pressure horizontally. Now, you are confusing the two.

4371 Q. No, I am not confusing anything, Colonel, I want to get your views, that is what I am after. I want you to tell us—

COUNSEL FOR DEFENDANT. His view is that you are confusing it.

COUNSEL FOR COMPLAINANT. Have your fun.

COUNSEL FOR DEFENDANT. I would like to have the Colonel elaborate on that view a little.

COUNSEL FOR COMPLAINANT. Go on, Colonel.

A. I have finished.

Q. Now, then, do you still say that the pressure would be the same per square foot no matter what the angle of the bank?

A. At right angle to the surface pressed upon, yes, the same per square foot.

Q. The water does not press at right angles to the surface on a slanting bank, does it?

A. Oh, yes.

Q. It does?

A. Yes, sir.

Q. It presses at right angles to the surface on a vertical bank also?

A. Yes, sir.

Q. And the vertical bank has fewer square feet than the slanting bank?

A. Yes, sir.

Q. Then the pressure on a vertical bank is less than the pressure on a slanting bank?

A. It is but the directions are not the same, and I qualified my answer by stating that the horizontal pressure tending to move the bank horizontally would be the same in every case.

4372 Q. Then it would be a different quantity per square foot in order to give the same results, would it not?

A. No.

Q. If you had a large number of square feet, you will have

to change the amount per foot in order to produce constant result, won't you?

A. No, I say the direction in the pressure—

COUNSEL FOR COMPLAINANT. May I ask one question there: Didn't you say, Mr. Wheeler, that in hydraulics the pressure is equal in all directions diagonally, laterally and every other way?

A. At a given point below the surface, in a liquid the pressures are in equilibrium, equal in all directions.

As to bad breaks on that feeder that comes down from Sterling into Hennepin Canal, I never heard of any. I have crossed the Desplaines river quite a good many years
4373 ago, but my first knowledge of it to any great extent was obtained in the fall of 1888. I was under order to make surveys and estimates for a 14-foot waterway, connecting the lake at or near Chicago with the Illinois river at La Salle, and I was placed in charge of that work. The first thing that I did was that I went into the field with a party that camped at Lockport, and commenced work on that survey. The work of survey extended for the remainder of that year, and practically all of the next year and included a small triangular, a system of levels, the topography and examination of the strata of rock below the surface of the ground. Well, I established a camp, tent and a cooking outfit and sheltered and fed the men at Lockport. I lived in
4374 camp with the men. As the work progressed the camp was moved along from place to place and when the field work was done I came into the city and had an office here. I think that during the month of November we broke up camp. I have no means of fixing that date now. I went to work in September and quit work in November. That is, quit living in camp.

We simply changed the manner of our work. The actual measurements with the survey of the stream were largely done at that time, and our men subsequent to that time boarded where they could.

4375 While I had an office and an office force engaged in reducing and platting the notes, yet I went from the office into the field back and forth to the parties who were doing work there but I did not live in camp any more after that fall. During the two months that I was in camp with the men, I was engaged, was working continually. I saw that the men went to work in due season in the morning, went with them, laid out a system of triangulation; was continually

in the field in looking after the work in the daytime. Frequently days I would be in the camp attending to correspondence and the finances of the survey, but I was busy all the time.

As to taking personally any of the measurements, I could not say whether I did. I did not many of them. I did
4376 not carry the chain. I might have handled the level. I remember that I made the observations for determining the azimuth largely myself. That is the determination of the position of the true north and south line. That was when I began and at intervals throughout the work. None of that survey was done by the needle, it was all azimuth work. The particular function of this work that I did from time to time determining the azimuth. I determined the direction of the true meridian by observations upon the stars, and that was used in the survey, so that all their lines would be run to the true meridian. I did that by astronomical observations. I gave the delineation of those lines, or this true meridian to the subordinates after I had made the ob-
4377 servation. That was always made in a way that it could be connected in with the survey. I did that not more than half a dozen times in the course of the work.

As to the principal use of instruments that I personally made in the field on this work, I don't recollect just how much I did do. I know that the little triangulation that was done, I looked after that, the setting of these stations. There was not very much of that in that survey, but I will say that generally the chief of the party does not do much of this actual measurement himself.

This map which is marked "Duplicate of Zarley's Exhibit," and which was sheet 13 in Major Marshall's report, also marked "Cooley 25" (Atlas, p. 3969; Appendix, p. .....), it is so long since I have seen that map that I hardly recog-
4378 nize it as one of my own production. It says so in the title that it is. I could not say whether that is actually a whole one of the waterway maps, or whether it is a reprint of part of it. I could not find on that map any specific point that I indubitably remember as mine, by which I identify my work on that map. It might be an imitation. I do not vouch for its authenticity at all.

So far as the work that was done by me in connection with that map is concerned, or the work that purports to be represented by it, there is no measurement that I personally took that is recorded there in a way that I identify as mine, and

that would probably be true of all the other maps, that azimuth line indicating my true meridian. I don't see it here. Nothing by which I can identify it.

My recollections of the Desplaines river itself, are recollections of work that was finished some eighteen or nineteen years ago; recollections as it was at the time I was doing that work. I had had no occasion to refresh my memory
4379 about that. I have not made any effort to do so.

Q. You speak in the report signed by you, which was published in House Document 264, of the House of Representatives, 51st Congress, first session of the Ogden Dam, and you made the statement: "At low water the entire flow passes in part through the Ogden Dam, but the greater portion into the canal through the permeable soil separating them." Do you remember the Ogden Dam, Colonel Wheeler?

A. I remember something of it; yes, sir.

Q. Referring to Hillebrand exhibit labeled "Sanitary District Chicago Map and Profile," you referred to this Ogden Dam, which separated the Desplaines river from the Ogden ditch, which connected it with the south branch of the Chicago river, by that statement?

A. Yes, sir.

Q. And in this statement, that: "At low water the entire flow passes in part through the Ogden Dam," you mean that it passes in part out of the Desplaines river through the Ogden Dam into the Ogden ditch and so out into the south branch of the Chicago river?

A. I suppose I did if I made that statement.

Q. Well, just glance at the statement, the last sentence on the bottom of page 40 of the document. (Showing witness book.) You will find your signature to the report over here a page or two further on. That is correct, is it not?
4380 Now, you have examined the statement, is that correct?

A. I suppose it to be, yes, sir.

Q. Now, the other, the remainder of the sentence is: "But the greater portion into the canal through the permeable soil separating them." By which you mean that the water of the—the greater portion of the water of the Desplaines river at times of low water soaked through the permeable soil into the Illinois and Michigan Canal, which was close by it?

Thereupon counsel for defendant objected to the question, and then after some colloquy of counsel on the ground that the witness did not have the book in his hands, the witness answered:

4383 "I think I understand this question; and I believe that the statement there in regard to the low water flow of the Desplaines river is correct as applied to that time." Counsel for complainant then asked:

"Now, in order that you may be clear, I will read again the statement that: 'At low water the entire flow passes in part through the Ogden Dam, but the greater portion into the canal through the permeable soil separating them.' Is it correct, Colonel, that you mean to say that these two causes operating together, the flow of water into the dam into the Ogden ditch and so into the Chicago river for one, and the soaking through the permeable soil into the Illinois and Michigan Canal as the other, those two causes could absorb and take up the entire flow of the Desplaines river in times of low water?" To which the witness replied, "Yes, sir."

And that is between those two cases, the cause of seepage and soaking of water of the Desplaines river into the
4384 canal was the greater of the two. It appears I so considered it at that time. There was more water that got away from the Desplaines river by soaking into the canal than there did by running through the Ogden ditch into the Chicago river, appears from that statement.

I had no experience in canal construction or operation prior to the Hennepin Canal. I had observed quite a good many canals before my work along that. The portion of the Hennepin Canal built at Milan went into operation in the spring of 1895, and has been continuously in operation ever since. That is four and a half miles of canal proper and eight miles of river. I treated the Rock river itself as a part of the
4385 canal for those eight miles. The old plan called for the entering the Rock river at Meredosia, but the plans as actually constructed, the canal centers the Rock river at the mouth of Green river. At any rate, this eight miles would be the point where these banks are, and the Rock river is the canal, and the canal is the Rock river for those eight miles. I think there are three rock reefs in that distance, the remaining distance it is a sand bottom.

4386 I have never made any test borings or explorations, but others have, and they report that it is material that can be dredged down to the required depth, except in those rock reefs. The practice with reference to paving towpaths on the Erie Canal I ought to know. I carried a level the whole length of it. It was not paved on the towpath. I don't re-

member any point at that time that was paved on the top of the towpath, but it was paved on the slope next to the
4387 water. in 1875. There were a good many steamboats on the canal at that time. The greater proportion of the navigation was by means of barges hauled by horses and mules. A great change may have taken place in the '70s in the use of the Erie Canal in that particular, but it had not taken place at the time I was there, because the major portion of the transportation was done in those barges hauled by horses and mules.

4388 I did not make any approximate estimate of cost of the amount of work necessary to protect this towpath bank of the canal against the operation of this pool, never made any figures on that at all. Well, I know only in a general way what it costs to do that kind of work, but I have made no measurements of quantity there, or no estimate of cost. I gave some figures on the cost of restoring the aqueduct, called that $75,000, and gave some figures on the putting in of a siphon pipe to feed the canal, and also the erection of a couple of locks. Those I figured to amount to $58,504.

The maintenance of two such locks and the maintenance
4389 of the siphon would entail costs for maintenance. I would say that in all probability the cost of maintaining the aqueduct there with one lock would exceed the cost of maintaining two locks and a siphon pipe in the end. I would not consider it very safe construction to maintain the aqueduct without any lock. The cost of maintaining a double system of locks together with a siphon pipe feeder might and might not exceed the cost of the open aqueduct without a lock. That aqueduct is in a position where it is exposed to great danger and it is so that a single accident to the aqueduct would exceed the maintenance of two locks for a long period of
4390 time. I made no allowance in my figures of any capitalization of the cost of maintenance. I did not make any allowance for the cost of operation. As to the cost of operation from this double set of locks on each side of a mill dam built of this kind, being very much greater than the cost of operation of an open aqueduct, I did not estimate on a double set of locks on each side of that river. Your question is erroneous in that; a single lock on each side of the river. The cost of maintenance of an aqueduct there is a very uncertain quantity. I have never maintained an aqueduct on piers in that way. I have had to do with that sort of work. Unfortunately, I have nine of them to look after now, much to my

regret. I would rather have them siphon pipes, but it
4391 could not have been done in the situation where these were located. I figured here on a pipe 752 feet long. They extended from the upper end of one lock past the lock and past the entrance for a boat to enter within the shore before locking, and the width of the river, past the lock on the other side. If you had a siphon pipe for supplying feed water, and if you had a lock system for getting boats across, and you were trying to use them both at once, you would not need two sets of water. The water is feeding down and it would be necessary to supply whatever water was used in the actual lockage, but otherwise the water would feed through the siphon pipe and go into that level of the canal. I understand that this Kankakee feeder brings water from the Kankakee river across the country and cross the top of the river at an elevation of some 76 across the river on piers into the canal.

4392 I am proposing to attach my siphon pipe to this Kankakee feeder some six or seven hundred feet to the left of the place where it crosses the river and take the water out of the feeder and carry it down into the river and then up to the canal by means of that pipe. I did not say 700 feet from the river, but the total length of the pipe is that. At any time you wanted to use the lock for locking a boat down in the river by means of this water, you would not have to stop using the siphon while you did it. There would be a lock full of water locked into the river. I would not say that
4393 even it would be double the amount of the lock full. The flow through the pipe would be continuous, whatever was demanded to supply that level of the canal or any demand upon it. Whenever a boat passed across they would abstract a lock full of water on each side of the river from that supply. The current would be running through the siphon all the time. As to there being this lock full alongside of it in addition to what you took out of the main current, there would be that much water that you would use from the supply brought down by the feeder.

As to making a computation on the supply of water which the Kankakee Dam would afford, in this way I did. I assumed that the supply would perhaps be from 80 to 100 cubic feet per second in that feeder. I assumed that the Kankakee river can supply much more than that if necessary. The
4394 data upon which I made that assumption—one thing was the reported computation of the measurements made

from the early survey of the actual flow in that river. I did not hunt it up myself, but it was reported to me by the person who did it, Mr. J. W. Woerman; he told me of a measurement which he found, an actual measurement. That amounted to something over 80 feet per second. My statement as to the adequacy of this system is not based on that.

As to knowing what current of water was required in the Kankakee feeder as it originally existed to make a discharge of 100 feet per second, I have not computed it at all. I saw the feeder and know its dimensions approximately. I did not think there would be any difficulty in bringing down as much water as that through that feeder and raise the water
4395 high enough at the head to bring it through. I haven't made any investigation as to what the conditions of the water supply were with reference to this feeder at all. I did observe what the level of the floor of the aqueduct was. What it was in actual feet, well, I could not to my knowledge say, because there wasn't any measurement made when I was there, but I know approximately where it is. Its relation to the crest of this dam is only a short distance, I believe, above the crest of the dam, probably the pool, also. The bottom of the aqueduct is above the top of the dam a slight amount.

Q. Well, what you know about that is something that you learned in the course of your conversation with these gentlemen who were with you?

A. And information that they furnished me. I believe I have that data in my pocket, if you will allow me to refresh my memory.

Q. They gave you some figures on it, did they?

A. Yes, from the actual levels.

Q. Well, if you have got in your pocket the figures of the actual level of the bottom of the aqueducts as compared with the crest of the dam and you want to refresh your mem-
4396 ory about it, I would be glad to have you, I will be very glad to have you give it to us.

A. The figures that I have show that the recess in the pier is below the level of that dam, but that the bottom grade of the feeder is at the elevation of the crest of the dam.

Those figures were given to me by Mr. Woerman. The elevation of the pool level is given as grade 77. The elevation in the recess of the piers of the aqueduct on which the aqueduct trusses rested is 73.6. The bottom grade of the feeder is given as 77.0. I have after that the note Sanitary District. It is possible that they may refer to the level of the Sanitary

District instead of to the same datum that these others referred to.

I personally visited the Bridgeport pumps from time to time from 1881 to 1890. I have not done so since that time.

Q. Do you remember, Colonel, that during the period
4397 that this survey was going on there were from time to time times when the pumps were stopped in their operation?

A. I do not remember that they were.

Q. Let me refresh your recollection. Don't you remember it was one of the things that you looked into that you had them at one time—that arrangements were made that the pumps were stopped for about a week so that you could make observation when the pumps were not in operation?

A. I don't recollect such a thing.

Q. Isn't that the fact?

A. I do not recollect it, I say.

Q. And then again you had observation of their maximum capacity?

A. I have no recollection of any such circumstance.

Q. And then again observations of their ordinary state of operation?

A. No, sir, I have no recollection of that either.

Q. Don't you remember that there was considerable complaint made from the people down the valley about the stopping of the pumps?

A. No, sir.

Q. And the reduction of the volume of water that was coming down?

A. No, sir; I don't recollect any such thing as that.

The size of the boats that I use in the Hennepin canal is less than 35 feet in width, less than 155 feet in length,
4398 and drawing not to exceed seven feet. How much of a fleet of boats I maintain on the canal, I do not know. Under the control of the canal officers at present there is one steamboat, a stern wheel towboat and one towing launch, gasoline, one boat termed an office boat. And I am building 12 barges for freight of which nine are now complete and one launch—one flat boat has been converted into a quarter boat for the men. We have borrowed, I think, five office boats from another district. Those are boats directly under my control on the canal aside from small boats. The towboat to which I have referred is a launch about 40 feet in length; the beam I do not know, probably not far from seven feet. And it has

a two-cylinder gasoline engine sixteen horse power connected with a wheel, a towing wheel about three feet in diameter; its ordinary draft when in operation I suppose is about three feet. It will tow these towing barges to which I have
4399 referred. I am using it all the time for that purpose. Well, we use those exclusively for the purposes of the canal. We are delivering lumber and hardware for houses and stone for riprapping, and things of that kind, but we do not carry freight for commercial purposes. There are freight boats on the canal owned by private parties. The canal then, admits of freight boats by anybody that wants to come on it; entirely free to all persons, of course complying with my regulations. There are a number of freight boats owned by private parties that are now operating upon the canal.
4400 I have no military title.

A transportation company has been organized and they are getting together a fleet of steamboats and barges. They have constructed one barge 24 feet in width, 120 feet long, and 9 feet depth of hold, for the purpose of carrying grain. I think they estimated the capacity at 20,000
4401 bushels. Of course it cannot be loaded to the full depth of the hold carrying grain. But a vessel may be deeper in its depth of hold than the depth of water it operates in—always is. So that the fact that a boat was recorded as nine feet depth would not mean that it needed nine feet of water to run in.

They have purchased and fitted up one steam barge, the City of Henry, which is a barge about 100 feet long and 18 feet wide, adapted to carrying grain or coal in its hold. They have purchased a small stern wheel steamboat, the Beder, from the Mississippi river, and equipped her for towing. They
4402 have built or rebuilt one pleasure barge for excursion purposes, which I suppose is about 100 feet by 20 with a carrying capacity, as they state, of 200 persons. They have another barge on the way of somewhat smaller dimensions, and I do not know the purpose for which that is to be used. There is another steamboat there that has come in for carrying excursions which is about 50 feet long, by perhaps 16 feet wide, more of a lake model, not a flat bottom boat. All along the canal they are getting in a large number of gasoline pleasure boats, launches.

Q. Have you given the figures on the smallest size of freighter or would the launch that you describe as the prop-

erty of the United States perhaps be about the smallest of the freighters?

A. That launch I am using to tow barges which I am building, through the feeder on the main line. A small boat can handle them.

Q. Would that be perhaps a type of the smallest form of freighter or perhaps you have some still smaller in mind?

A. No, I would hardly call that boat a freighter. She does do towing, but she was built for pleasure purposes originally.

Q. But you are in fact using her for freight purposes?

A. Yes, sir, towing purposes.

Q. What I asked you was whether you had in mind a freighter of still smaller dimensions?

4403 COUNSEL FOR DEFENDANT. One moment now, he does not say it is a freighter. He said for towing purposes. Towing is not freighting.

COUNSEL FOR COMPLAINANT. The captain and I will get along all right.

COUNSEL FOR DEFENDANT. Yes, I haven't any doubt of it.

COUNSEL FOR COMPLAINANT. I will get along with the captain.

The COURT. That hardly disposes of the objection, though.

COUNSEL FOR COMPLAINANT. The objection is to a comment by counsel, a criticism on language that has passed.

COUNSEL FOR DEFENDANT. Yes, really only the second objection I have made this morning, and I will withdraw that.

The WITNESS. I would not call that launch a freighter. We do not load freight into her to any extent, but she does do towing; also does miscellaneous errands and traveling on the canal. She is not a type that would be built for freight purposes on the canal or upon any other waters.

Q. Now, you may tell us whether you have in mind any smaller freighter than the dimensions of this towing launch to which you have referred?

COUNSEL FOR DEFENDANT. I object to the question.

The COURT. He may answer that.

A. I haven't any boat in mind.

4404 I would not say that this was the first fleet I have had charge of. I have had other fleets. Oh, I would hardly call it a fleet. I had a steamboat and a dredge and some dumping scows doing dredging at one time, and traveled a little on the Mississippi river with the boats under my control. I mean to say that at one time I had charge of a dredging fleet in connection with this same canal, the Hennepin Canal at

its western entrance. That is what I would call a construction fleet. I also had some work in connection in the earlier years down on the Mississippi river. I have described it
4405 as having charge of large surveys. I say I had charge of large surveys in the field, and had occasion to use steamboats and other boats, lived on quarter boats during this operation, during the progress of the surveys, and had some difficulties in navigation which I remember quite distinctly, at several places on the Mississippi, one place a short distance above Natchez, for instance. I went ashore amongst snags and floundered about the drift there for twelve hours and looked to be in a pretty bad case. I had two boats and a steam launch, and they went ashore together. The launch extricated itself, but the boats were fast, and in the night I succeeded in getting assistance from Natchez to pull the
4406 boats out. That was in the spring of 1883. Well, it is like other boats that go ashore. They usually do not go from desire of those navigating them, but because they cannot help themselves. It was one of the inherent difficulties of the situation there. One of the difficulties was that I had not sufficient motive power to control the boat which I had there in the high wind which set up after I got loose from the shore above. The wind would drive us on the bank. Well, I ran ashore on sand bars several times against snags, and to the shore several times when I did not want to go there; nothing else. That is, the encountering of sand bars and snags and obstacles lying in the river, or being driven upon obstacles on the bank, and by storms on the water also. Those were the principal difficulties.

4414 ADAM COMSTOCK, a witness for defendant, testified as follows:

Direct Examination.

My name is Adam Comstock. I am the same Adam Comstock who has already given a deposition in this case.

Q. Mr. Comstock, in this case certain witnesses have testified that there was a road in 1858 or 1855 which
4415 branches off from the Brandon's road and ran to the water edge, and that this road was deeply rutted. Do you know about that road?

A. Yes, sir; there is a little island marked on the plat there.

COUNSEL FOR DEFENDANT. The witness refers to Woerman's Exhibit 4.

A. It is opposite a point that is marked 118 feet wide there, there is a little island there, where counsel for complainant has just placed a cross.

Well, the earliest days there was a ford just below that little island and a road. There was a public road for many years until the bridge was built; when the bridge was built that point was abandoned. There was not ever any landing place at that point.

COUNSEL FOR DEFENDANT. Where was your farm with reference to the position of that road?

A. That what?

Q. Where was your farm with reference to the position of that road?

A. I don't just get that.

Q. Where was your farm on which you lived—

4416 A. Oh, the farm? We lived five miles down the river from Joliet.

This road is about a mile and a half south from Joliet, it run from the Brandon bridge down to the ford just below the island. We lived on the farm there from 1837 to 1841, and then in Joliet after that. My father owned land along the river other than that on which we lived. In 1845 he bought a piece of about forty acres of land where the Adler slaughter house is. It is right within a quarter of a mile of this road. He owned that land up to 1860, some time in the '60s. When we moved to Joliet we got our fire wood off from the farm, so that we were going backwards and forwards frequently, and we got our hay off from the farm up to 1845. Then

4417 we bought this 40 acres at the head of the lake and we got our hay off from that after that. In going backward and forward between the farm and Joliet we passed this road. The road branched off at Brandon's bridge. The road to the farm run for about three miles and a half right in sight of the river.

4426 My business is that of a surveyor, and I have followed that business right along since about 1849 and am still following that profession. I will be eighty years old next September. There was never anything done as to the building of the Town of Buffalo on the northwest quarter of Section

2, in Township 34, North, of Range 9 East, in Will County. I know the place.

4427 Referring to Exhibit A-7, the plat of Vienna, recorded September 19, 1835, there never was any town built known as Vienna; there never was any house there at all.

4428 *Cross-Examination.*

I know W. W. Stevens of Joliet. I remember having a conversation with him at his office last fall or winter.

Q. Do you remember his remarking to you, "Adams, I don't understand how they ever got those large boats up over the rapids at Treat's Island"?

A. Yes, I know we used to talk about that.

Q. Did you reply to him on that occasion, "They warped them up?"

A. No, I said that they, that, that the matter was simply adopted to get up rapids or down them as they call it, run out a long rope and hitch it to a tree and then stand on the boat and pull on the rope. That is called cordelling.

4470 JOHN M. SNYDER, a witness for defendant, testified as follows:

Direct Examination.

My name is John M. Snyder. I am acting secretary and chief clerk of the Illinois and Michigan Canal. I have
4471 already given a deposition in this case. I have charge of the books, records, and other documents belonging to the Illinois and Michigan Canal. There is among those books one showing the lands of the canal, upon which the lands were deeded and sold. This document that is now handed me is a photograph of one of the pages of what we call the land sale book, although it may not be designated on the back of the book.

COUNSEL FOR COMPLAINANT. Photograph of what?

COUNSEL FOR DEFENDANT. Photograph of one of the pages of what they call the land sales book. That is the book according to which the lands were sold?

A. The lands were sold originally; yes, sir.

Q. Do you know whether that is a correct photograph?

A. Yes, sir.

Q. Were you there when that was made?
A. Yes, sir.
Counsel for defendant offered the sheet in evidence.
Counsel for complainant objected to it on the ground the photograph is not competent evidence and that it is
4472 not shown to be relevant or competent or material in any point of view, if the original were here.
Thereupon counsel for defendant offered to have the same plat certified to and contended it was admissible on the subject of meander line.
4476 The COURT. The map may go in solely in reference to the meander line.
COUNSEL FOR COMPLAINANT. We object to it from that standpoint, as well as the other.
The COURT. Overruled.
Everything that appears on the map, on the photograph, appears upon the book from which it was taken, all those figures and all that appears on the original map, and all the records. That writing has been there ever since I have been connected with it. I have been connected with the office between four and five years.
Thereupon objection was made by counsel for complainant that it was not admissible for any purpose.
Whereupon said map was introduced in evidence and marked Snyder Exhibit A. (Atlas, p. 3979; Appendix, p. .....)

4639 PATRICK FOGARTY, a witness for defendant, testified as follows:

Direct Examination.

My name is Patrick Fogarty. I live in Joliet. I first
4640 came there in 1872, then I went away from there. I was around there for three years and then I went to California. I was in California for about five years, and then came back there in 1880. I have resided there continuously since. Well, I worked the first three years I was there, I was working at the stone cutting trade, in the City of Joliet in different quarters around there. Well, I came back there in 1880; I worked for five years for the Joliet Stone Company there as the stone cutter, and foreman over stone cutters and foreman in the quarries. Then I started in business for

myself, two miles and a half below Joliet, well, some time in 1885 or 1886, I would not say which. I started in at that time in the quarry business. I owned a quarry. I was in partnership with another man down there near what is called Patterson Island, two miles and a half below Joliet. I
4641 stayed there, in with him about two years, then I sold out and opened another quarry down at Rock Run, about six miles below Joliet—between five and six miles. That quarry is on what is known as Lake Joliet, right at the mouth of Rock Run Creek, at the northeast bank of the creek. The quarry was on the right hand bank going down stream. I opened that quarry up in 1888. I operated it about eleven years, from 1888 until 1889, or 1898. I built a bridge across the river there, a narrow gauge railroad and took the stone over to the Santa Fe. The Santa Fe run right opposite the quarry on the other side of the river, not on the other bank exactly, but there is between eight hundred and a thousand feet between the Santa Fe and the bank of the river
4642 there at that place. The kind of a place that I built across the river might be called a trestle bridge. I took the posts, timber there, took two posts and set them up like this, put cross-pieces on the bottoms and then took and put the cross-pieces like that, you know, so that they could not sway (indicating), and put out posts down into the water there and drove them down with a big sledge till we got to solid bottom and cut the posts off then so they would be even. This is the point on Woerman's Exhibit 4, where the railroad bridge is marked, the point where the bridge was built across Lake Joliet (counsel indicating on map). It run pretty near in that way, close by that. It was right by this line but not on the angle that is shown there, more on an angle like that (indicating). It was at the very narrowest point of the lake near about Rock Point, right on the section line. It struck the bridge about fifty or seventy-five feet from
4643 the shore. The first bridge I built was between four and five feet, between the water and the bottom of the stringer; I had 14-inch stringers in. That bridge remained there four years. Well, I built the bridge in 1888; it was washed out in 1890, and the bridge all stayed there with just the fish plates broke off and the rails that I had on the south side of the bridge. The bridge left out and swung around and all stayed there; I went and put it back just as it was. Then it was washed out again in 1892. Then we took and rebuilt it and raised it up higher and put longer stringers in.

I raised it up then so the top of the bridge was about seven or eight feet above the water. That bridge stayed there from 1892 until 1899. I took it out in 1899, so that those bridges that I maintained there lasted there from about 1888 until 1900, about that, a period of about twelve years. And they stretched clear across the river. These trestle posts
4644 were apart. The first bridge I had in, I had 16-foot stringers. The second bridge I put in, I had 32-foot stringers, except one span in the middle of the river, that was 50 feet. I did not get any authority from anyone to build that bridge across there.

Q. Does this paper that I show you contain a correct representation of the bridge as it existed from your quarry across Lake Joliet?

4645 Objection as immaterial and irrelevant.

The COURT. You may ask him what it is.

COUNSEL FOR DEFENDANT. Now, Mr. Fogarty, state what is represented by those pictures upon that paper just handed to you.

A. Well, the lower picture represents the bridge here about as near, I should judge, as it was; and the upper center picture here is a view of the quarry and the other one
4646 up here is of an old building in Joliet that was built from the quarry.

That picture was made I think somewhere in the fall of 1888, as near as I can recollect. You see the date on here, that is the price list that was printed in 1899, in April, 1899, but to the best of my recollection there was a man down there sketched this in the fall of 1888, as near as I can recollect. It is substantially a correct representation of the quarry and bridge across the river there. It was not sketched by an artist and engraved.

Counsel for defendant then offered in evidence the picture of the bridge.

Objection overruled.

4647 Said document was received in evidence and marked Fogarty Exhibit 1. (App. II, p. 3904; Appendix, p. .....)

Q. State whether or not there was any navigation took place up and down through that bridge during the twelve years that it remained there?

A. Nothing more than rowboats, fishermen and hunters that went up and down there.

As to how familiar I am with the Desplaines river below

Joliet, well, I know the river middling well from Joliet down to Millsdale. Millsdale is the point where the bridge was built across to Treat's Island, from the south bank of the stream. I did have occasion to consider the matter of floating the stone down that part of the river. Well, when they started in to build the Millsdale, I wanted to put in a bid on the abutment of it, stone work, and I went down there, investigated it around the head of Treat's Island to see whether I could
4648 float stone from the quarry at Rock Run down there or not. Well, I was thinking about building a scow or flat boat.

COUNSEL FOR COMPLAINANT. I move to exclude what he was thinking about.

The COURT. Yes.

COUNSEL FOR DEFENDANT. That is preliminary, to show the purpose of his investigation.

COUNSEL FOR COMPLAINANT. It is objected to.

A. How shall I answer it? I went down there and investigated to see how deep the water was, to see whether it would be practicable to take a boat of stone down there or not and I found the water was very shallow for a great ways and then I didn't think I could get the stone down there on the flat boat.

COUNSEL FOR COMPLAINANT. I move to exclude it.

The COURT. You abandoned the scheme, did you?

A. Yes, sir; I abandoned the scheme.

I was not considering any particular size boat there at all. I only thought if I could get one that would draw a foot or eighteen inches of water when it was loaded.

Q. What was the result of your investigation and soundings down there as to how far you could get down with such a boat?

4649 Objection overruled.

COUNSEL FOR DEFENDANT. Q. State what you found in your investigation there, Mr. Fogarty?

A. Well, I found I could not get within from three to five hundred feet of the head of the island with a boat drawing a foot to eighteen inches of water, the way the water was then. As to why I said I could not go down any farther than that, that was because there was not water enough to get down within from three to five hundred feet of the island; that
4650 was the only reason; that there was not water enough. The bed of the stream there above the head of Treat's Island was full of—awful stony. There is all sizes there from

the size of your two fists up to weighing a ton apiece or more, some of them. I was there when the bridge was washed out in 1890. I had a car drift down there that was loaded on the bridge and it struck against the head of the little island. I went down with a team to get the car out and I had a time to get it out of there on account of the rock, stony bottom, and I knew from that that you could not drive in around there and haul a load. Above Treat's Island, at the time I made this investigation, I think there was from one to two feet of water. I observed the condition of the stream below the
4651 head of Treat's Island. The channel was narrow and run with a riffle down on both sides, all of those islands. There was a ford there where we used to drive across with a horse and buggy, drove right across from the south side over the big island and then on to the west bank. The condition of the bed was pretty stony. Where the ford was, somebody, I guess, must have thrown the big boulders out. There was lots of big boulders down there below the ford in both places.

COUNSEL FOR COMPLAINANT. I move to exclude what he says, somebody must have done.

The COURT. What must have been done, may go out.

There is a few in there of big ones and there is other smaller ones. I never took particular notice only here and there where I could see the water would come up and strike them and make a deep fall. There were some that would weigh up to three or four tons. There were some, of course I
4652 didn't call my particular attention to it because I was not concerned in it, because I couldn't say exactly how plentiful they were, but I know there were boulders scattered all over here and there. There was some sticking out of the water and more we could see the water breaking over them.

Q. How far up stream did you have occasion to go on the river above your quarry?

A. Above the quarry?

Q. Yes, sir.

A. Well, there on Lake Joliet above the quarry?

Q. Yes.

A. You are going from Treat's Island way up two miles and a half above.

Q. Now, I am going the other way.

A. All right. Then I want to understand.

Q. Do you know the river above where your quarry was?

A. Yes.

Q. About how far above?

A. Well, from where the quarry was there up to Patterson's Island there is all the way—well, from four to ten feet of water. Then when you get up to Patterson's Island then the water begins to get shallow from there up to near Brandon's Bridge. You can run on your rowboat up to about Brandon's bridge, and when you get to Brandon's bridge
4653 water shallows there, it used to be, so that you could wade across there with a pair of boots and would not get your feet wet. That was down from Brandon's bridge to Joliet; and from Brandon's bridge up to where the mouth of Hickory Creek comes in. At the time the Brandon's bridge was built I was in this other quarry down at Patterson's Island and we furnished a lot of stone that went into Brandon's bridge, and we run it up on the railroad, we dumped it off there and then took trucks and hauled it into the river there on a stone truck. Right at Patterson's Island it is four or five feet. It shallows for a quarter or half a mile till it gets up to near Brandon's bridge, and then it shallows right at the bridge and just below the bridge, and up this way, from there all the way up till you get to about pretty near the city line of Joliet. In the stretch of the river from near Brandon's bridge up to near the city line of Joliet, you could
4654 walk across with a pair of boots on. You could walk across with a pair of boots on there lots of times for two or three months in the summer time. That was before the drainage water was let in. The character of the bed of the stream for that stretch is all boulders and rocks. I never went right down to get right down into the river there, only they seemed to be scattered all around in there, from what I could see from the bank of the canal. I was never down in the bed of the river there, only I could see the boulders were pretty plentiful. They were exposed. The water did not run over them, the water run around through them. I did not ever try to go up through that stretch of the river with a rowboat or down it there. I have been down the river from below Brandon's bridge, down around the head of Treat's Island in a boat.

I have had experience in navigation somewhat. I was
4655 brought up in New York State on a lake there; Otsego Lake; learned how to run a rowboat and sailboat. I was on the Mississippi, St. Louis to Keokuk, Iowa. On the Sacramento river from Sacramento to San Francisco, ten or a dozen times.

4656 COUNSEL FOR DEFENDANT. Q. I will ask you Mr. Fogarty, whether in your opinion the Desplaines river between Joliet and Treat's Island is capable of being used for ordinary purposes of commerce?

COUNSEL FOR COMPLAINANT. Objected to the question on the ground that there was no foundation laid for an expert opinion.

Overruled.

A. Well, I would have to qualify that, from Patterson's Island down to near Treat's Island you could navigate it with a boat drawing from two to three feet of water. At Treat's Island, when you get down through there you could not navigate it with anything but a rowboat; and from Brandon's bridge up into Joliet it would be a hard matter to navigate it with a rowboat when the water is at ordinary stage.

4657 I have drove up and down the stream below Treat's Island in a horse and buggy, from there up to the mouth, but I do not consider myself familiar with it. I did not observe the river down near its mouth. I have drove along the road there maybe four or five times with a horse and buggy, and all I could see was what I could see from the road. Right down along the large feeder there. I did not ever know of any commercial navigation being carried on on the Desplaines river.

4658 *Cross-Examination.*

I had a bridge across the river. My bridge was built the first one in 1888. It was washed out in 1890, two years afterwards, and that bridge had been built about five feet, four to five feet above the water line. I did not build a new bridge when that had washed out. The fish plates broke off at the south end of the bridge and the bridge all stayed there, and I just put it right back in again as it was, got the same bridge back. It stood then until 1892. Then it was washed out again. I see I was too low down then, and I took and rebuilt the bridge then.

Thereupon counsel for defendant secured permission to ask further questions on the direct examination.

The witness testified as follows:

4659 I was familiar with the river up and around Lemont and Romeo, and Lockport. I have known it for years. I have been going up and down there ever since about 1885. I have been fishing up there since they let the water in from

the drainage canal, and went across the river there on the riffles without getting my feet wet. I had on ordinary leather boots. Before they let the water out of the drainage canal, the condition of the river up there during the summer seasons was very low. This was above Lockport. The drainage water was not going in where I went across. It was lasting from three to four months, from the summer time, sometimes six months. During those months, it would not be more than six or eight inches. Sometimes it would not be that.

4660 That was after the water from the drainage canal was put in; that was after the water, drainage water came in above that. It was somewheres above Fitzpatrick's line in Lockport.

Q. You were fishing up there?

A. Yes, sir.

Q. Fishing in six inches of water?

Q. Fishing in six inches of water?

A. Well, I was fishing along the river there wherever I could find a deep hole.

A. What?

Q. I understood you to say you waded all around there with your boots on?

A. No, sir. There was some places it was deeper. I am speaking of the ripples. I am speaking of the shallow places.

Q. Did you have big rubber-hipped boots on?

A. No, sir; just ordinary leather boots.

Q. Waded across?

A. Yes, sir.

Q. Fishing all the way across were you?

A. No, sir; I was not doing any fishing there. I was going across the river, going from one side to the other. I was fishing in the deep places, deep spots.

Q. And you looked and found where the ford was, the place, and followed it on the ripples across over?

A. Yes.

4661 My first bridge was in 1888, washed out in 1890. I rebuilt it in 1892. Brought the bridge up higher. I placed it about eight feet above that, about that. On the first bridge the spans were fifteen feet, and the next bridge they were thirty-two feet, except one span; I had one span in the middle of the river, was fifty feet, where the water was deepest. About a carload of stone that was washed down somewhere, it was not a carload of stone; it was a dump car that I had for taking away the rubbish from the quarry and when the

water got high in the river I loaded the car and ran it onto the bridge to try to hold the bridge down, and when the bridge went out, the car went over into the water and unloaded itself and went down against a little island, and I found the
4662 car down there and the little scale boat for loading stone on. I run all of the cars on the bridge loaded, to try to hold it down. The kind of boats I had stone on was scale boats we called them. We just took it, two inch plank and spliced them together like that, spliced them together crossways. They make them different sizes in different quarries. The one I had was 5 feet by 6, or 5 feet by 7, four inch thick plank. When the bridge got away, the car that was on the bridge was upset and emptied itself of stone and then floated down the river. It floated about two miles and a half, and then I went down there and got hold of it with horses and pulled it out. I made the investigation down there below Treat's Island, or above Treat's Island. As near as I can recollect, I cannot say positively, I think it was 1895, but I won't say for certain. It may have been 1894, or 1896. I think it was in September or October. I cannot say which it was, the fall of the year.

Q. Where was that ford where you say they crossed
4663 the river? I think you say about Treat's Island where the stones were not in the way.

A. Where I suspected that they had taken up and moved the stones was where the ford was, the ford led right across from the south branch; it was not exactly the south there, but they call it the south. The ford is about 600 to 800 feet below the point of the Big Island, at Treat's Island I mean. It was not 600 to 800 feet below the lower portion of that island, the upper point, below the upper point of the island, as near as I could judge. I didn't see them picking up any stone there and moving them. I don't know as there had anybody, but the ford had been used for years. I was nearly—

Q. But there was a place there where there were no
4664 stones to interfere with travel in the river?

A. No; there was no very big ones; but they were not smooth.

Q. Not so big, but what you would drive a wagon right over them?

A. No, sir.

Q. Or ride a horse over them?

A. No, sir.

I was raised in New York, near Otsego Lake. While there

I learned to row a rowboat and run a sailboat, and I left there in 1871. That would be thirty-seven years ago. I was fifty-nine last May; this May. I was twenty-one or
4665 twenty-two years old when I left there. I was on the Mississippi river once. I said I had rode on the Mississippi river from St. Louis to Keokuk just once on the boat, made one trip across it, that is all, came up on the river from St. Louis to Keokuk as a passenger. I spoke of being on the Sacramento river. I was on the boat there simply as a passenger, that is all, and went from Sacramento to San Francisco. I was up and down there I guess ten or twelve times, every time as a passenger, and that was all the waters that I have been on.

Q. You do not profess to be very much of a sea-dog, do you on that experience?

A. No, sir.

Re-direct Examination.

4666 Take those pictures there and you will see a scale boat hanging right on the derrick there. They were used for putting rowboats down on. They were used on the land. They were merely plank just laid across each other like that and spliced together, and some quarries had them 4 by 6. I had them 4 by 6, and 4 by 7. There was some iron run across about 18 inches from one end, and another iron in the other end with a loop down 2 or 3 inches, and we ruled on those to take them over to the car, take them over to the railroad, hoist them up and dump them into the car. It shows one there hanging on the derrick in the illustration.

Q. What was this quarry at Rock Run that you run and operated for some time known as? What was the other name for it?

Objection as not redirect examination. Overruled.

COUNSEL FOR DEFENDANT. Q. What did the people call it?

A. Well, there locally the place is known there as Rock Run. That has been the name, that has been the local name.

4667 Q. Did the quarry have a name?

A. Yes, sir.

Before that time, it didn't have any other name. It was on William Miller's land. I think, as nearly as I can recollect, it was known as the old Swallum quarry. There was a quarry opened there, near where I was.

Re-cross Examination.

These boats that I had there did not have sideboards on them, just a flat bottom. Take the paper there, no
4668 wheels. Take the plank like the two thicknesses of your hand, spike them together, then an iron across each end with a loop on each end, an iron here, and a loop here, and hitch it to three chains to go down and pick it up like this, put a chain on each side, and another one like that and pick them up and when it was loaded with rubel stone, I did not haul them on the ground, laid them down in the quarry, laid the rubel on them, then picked them up with the derrick, swung them up and put them on the little car of the quarry and go to the railroad car and hoist them up and put them into the coal car. As to why I call such a thing as that a boat, I don't know. That is the only name I know for them. They have always been called a scale boat.

4669 AMOS R. BROCKWAY, a witness for the defendant, testified as follows:

Direct Examination.

My name is Amos R. Brockway; I am fifty years old and live in Joliet. I have been in Joliet now about twenty-three years. I cannot tell you exactly what year it was I came
4670 to Joliet. Before I lived in Joliet I lived four miles below Joliet. I lived there until after I was twenty-two years old, along in there. I was born in Will County. I am a livery man at present. I have been in that business for myself about fifteen years.

I know where the Desplaines river is. I see it every day, when I am in Joliet. I am in Joliet most of the time. I see the river in Joliet and I see it below Joliet or above Joliet, just whatever happens to be my way to go. My farm is just about a half mile from the river.

4671 When I was a small boy I was within a half mile of the river. I am pretty familiar with the river clear down to the mouth of the Illinois. I had occasion to see the river down below its mouth because I fished, hunted; I have hauled people up and down there, going fishing, more or less ever since I have been old enough to.

There are rapids or shallows in the river below Joliet, from the old Malcolm Dam down below Brandon's bridge, that is what they call the riffles. Then you have got water, a good deal of water from then down to,—well, just a little this side of Treat's Island. That stretch of the river just below Brandon's bridge down to towards Treat's Island is called
4672 Lake Joliet. Well, the other side of Charley Smith's bridge are riffles and stones. There is a deep hole, and then on down about a mile and a half from there it goes dry; it used to go dry and wash holes, the fish would get in there and they couldn't get out until there would come another freshet. Smith's bridge is about a mile and a half or two miles from Treat's Island, farther down the river.

Below Smith's bridge you find what they used to call the old ford. There are riffles there. There were riffles all the way between, clear across the full width. Up and down the river it probably was a stretch of about three miles. Below that you would come to stone, big nigger heads, I have sat on them along in the fall of the year and fished in the mid-
4673 dle of the river. That is down below Charley Smith's, down at the mouth. I was fishing there last year; that was the time I sat on the boulders and fished. In places the water was a little over knee deep; on other places it was not over four inches.

I am familiar with the river below that down the mouth. The condition of the river there with reference to the depth of water and boulders is about the same all of the way. There are boulders there, some of which would weigh five tons. There is lots of them. Most of them are exposed; you can see them stick up. Some of them you can see where the water runs over them. I am referring to the Desplaines
4674 river right at about where it joins with the Kankakee. You couldn't used to run a boat through there, at Treat's Island, only at certain times a year, *i. e.*, wet times, late in the fall, or— You couldn't run a boat through there excepting in the spring season, because you couldn't run it on dry land. There was not sufficient water. I am referring to a rowboat. There were plenty of boulders in the river at Treat's Island. A stretch of river over from Brandon's bridge up to Joliet is almost a complete bunch of big, round nigger heads and boulders. They are so thick that I would not want to try to take a big one through there. The water between Joliet and Brandon's bridge in the ordinary sum-

mer, in the summer season after the spring freshets are
4675 over, before the drainage water was discharged into the river, would not be over six inches, hardly any place below that, during the last, the rest of the season.

I am familiar with the river above Lockport. I have known it about fifteen or twenty years. I married a woman that lived right close to there. I had occasion to go there once in a while, before I was married and since. I used to haul people up there before street cars went through. We used to haul lots of them up there fishing, with the bus, you know. I knew the river up there before 1871; I had occasion to visit it frequently before 1871.

4676 At 9th street, there at Lockport, there was a bridge under water—there would not be water enough there for anybody to take a buggy over and wash it, maybe three months in the year. To take it over there, and further up it was very shallow. When you got up to about Fitzpatrick's line there, you would find a deep shoal up to Lemont, and there where the Santa Fe tracks crosses there never was very much water there until the drainage people turned it through there; I don't know just what year they turned it through. During the season after the spring freshets were over, above Lockport and before 1871, it would not average, on an average clear through, it would not average 12 to 14 inches anywhere hardly. There were places where there was not six inches of water, and other places where it was completely dry.

4677 Above Lockport there must be from three to four miles, two or three, where there would be only six inches of water.

I was familiar with the river below Joliet before 1871. At that time, between Joliet and Brandon's bridge, there might be some places along in there, in that line, in there that it would be probably 8 or 9 feet deep, but it did not run only a short way till it was shallow again. There was about four miles of it there below Joliet down to the Rock Run that was considered pretty deep. Prior to 1871 between Joliet and Brandon's bridge, before you get to Joliet, there never was any water there to any extent, any certain depth at any time, only just in a freshet. Sometimes there was not

4678 any; it was dry. During the entire season after the spring freshets were over, there were some places it would not average six inches of water. When I said there was deep water, 9 feet deep, I did not—I was not referring to that part of the river between Joliet and Brandon's bridge.

The spring freshets, spring floods would usually last in the winter before 1871, a week or two weeks.

I had occasion to observe the river below Lake Joliet before 1871. I fished and hunted there. My folks used to take me down there when I was a little fellow. This Treat's Island used to have a little mound of grapes and gooseberries,
4679 and there was nothing, we could drive right across the river to one island, and down through the other, and by dodging around through the stone you could get there all right.

During the summer season down on the shallows at Treat's Island, the water would not come up to the hubs on the buggy. Along the riffles near Smith's bridge, during the summer season, it might average 8 to 10 inches. I never knew of any navigation being carried on that river for commercial purposes. I never saw anything other than a rowboat on the river. The only other boat that I ever have known to be operated on that river, was a fellow who had a little cannon sticking on to it, and we got after him—with a cannon in the end of it, and we got a lot of rifles and chased him out. That was above Lake Joliet.

4680 *Cross-Examination.*

I am a liveryman, and have been engaged in that business for about fifteen or sixteen years, for myself. About fifteen. It was along in 1892 or 1893, or 1894 that I commenced. I was a horseman when I left the farm. I left the farm when I was about 22, or a little past. I had become a horseman before that time. I continued in one line of horseman busi-
4681 ness from that time on. From along about 1892 or 1893 back to the time when I left the farm, I was handling horses, and around stables; kind of a hostler, a little of everything. Last year, as late as last year, I was down fishing down there in the river, and sat on the cobble stones, or whatever kind of stone there may have been, sat on them and fished in the river. The water was not to exceed four inches deep. I was fishing for suckers; that is where suckers will be caught, and good bass, in shallow water. This was only last year.

Q. Don't you know that the drainage water, the water from the drainage canal has been turned in for about eight years?

A. Not down in the Illinois river, it ain't.

Q. It does go down there, doesn't it?

A. If it did, I haven't seen it; that is where I sat on the stone right near where this dam is being built too.

4682 Q. In the Illinois river?

A. Yes, sir. It was about 40 or 50 rods below where this dam was being built.

Q. And this water from the drainage canal didn't come down there?

A. I didn't see any of it.

Q. Where do you think it went? Up the Kankakee river?

A. It might.

The WITNESS. There was one fellow duck hunting with a cannon, in about 1883. He had a rowboat, a great, big one, a longer one than unusual, and he had a gun on a swivel in the bed of it, you know, and he would get down and sight that on a flock of duck, and it was good-bye to the whole flock.

Q. How far could he get them, one, or two or three or four miles?

A. Well, I will tell you: I will tell you: I remember

4683 one day I was about half a mile below him, and it got so hot in the weeds where I was, it was too many bees for me.

4689 THOMAS T. JOHNSTON, a witness for defendant, testified as follows:

Direct Examination.

My name is Thomas T. Johnston. I am in my fifty-second year. I reside in Evanston, Cook County, Illinois. My occupation is that of a civil engineer. I graduated at the Rensselaer Polytechnic Institute at Troy, New York, in 1877. On the 1st of January, 1878, I entered the service of the United States Engineer Corps, in which I remained until June of

1886. In the first half of 1878 I was connected with the

4690 improvements about the Washington monument in Washington City, the work at Washington being particularly with reference to the making of the Babcock lakes in the Washington monument grounds, together with their outlet, lakes and drainage.

In July, 1878, I was assigned to duty on a survey of a portion of the Upper Mississippi between Lynchville, Wisconsin, and Savanna, Illinois. In December of the same year I was employed on a short survey on the Missouri river at Atchison,

Kansas, and on July 1, 1879, I was assigned to the charge of what was called an observation party on a reach of the Lower Mississippi about 70 miles below Cairo, the reach of the river including a distance of about 40 miles, the duties being to survey and resurvey the reach of river with a view to determining its hydraulic elements. These duties and assignments were all under the Federal Government until June of 1886.

4691 In the summer of 1879 I spent July and August on the snag boats at Mound City, Illinois, reducing the notes of the surveys of the previous several months.

In September of 1879 I was assigned to a survey of the Gasconade river in Missouri, which work engaged my attention until in December of that year.

In the winter, the early winter of 1880, I was in the St. Louis engineer's office, writing up the notes of the survey of the Gasconade river, and was assigned from time to time to miscellaneous duties in connection with the study of the physical characteristics of the western rivers.

In the summer of 1880 I was assigned to the charge of making a survey of the Missouri river in the vicinity of Yankton, Dakota, and of Running Water, Dakota, or Niobrara, I think it is called.

In the fall of 1880 I was assigned to the river improvement work on the Gasconade river in Missouri, of which I had charge of making the survey the previous year, and that engaged by attention until December of 1880.

On returning from the Gasconade river to the St. Louis office of the engineer corps, I was assigned through the first nine months of 1881 to work in connection with the study of the physical characteristics of the western rivers, incidentally in that spring making an inspection of the Missouri river from Sioux City to its mouth, with reference to the effect of a considerable flood that occurred in the spring of 1881. In the fall of 1881 I was assigned again to improvement works on the Gasconade river, which engaged my attention until the last of the year.

4692

In the beginning of 1882 I returned again to the St. Louis office of the United States Engineer Corps.

Through the year 1882 I was on duty in the St. Louis office in relation to the study of the physical characteristics of the western rivers as in previous years, and in the latter part of that year my attention was turned particularly to the effects of the large flood in the Lower Mississippi in 1882.

In 1883 until the middle of the year I was engaged in the same duties as through the year 1882. In the fall of 1883, and until the end of the year I was assigned to duties in connection with improvements on the Missouri river at St. Joseph, Missouri.

January 1, 1884, I was recalled to the St. Louis office
4693 and from that time until June of 1886 my attention was given exclusively to the continued study of the characteristics of western rivers. In the course of that work I had to do with a good many thousands of gauge readings, a thousand or two measurements of the flow of the western rivers and incidentally studied the question of rivers in general.

In June of 1886 I was given a position with the Chicago Drainage and Water Supply Commission, as assistant engineer with—as stated in their report, with particular reference to miscellaneous work and water supply. I remained with that commission until it went out of existence in the summer of 1887. In the course of my connection with the Drainage and Water Supply Commission, I devised the methods by which the Chicago Drainage Canal was afterwards dimensioned.

In February of 1887 I conducted the measurement of the flow of the Desplaines river at Riverside, Illinois, locating the position at the point at which the measurements were made, and the methods by which they were taken.

In the summer of 1887, as the Drainage Canal Commission or the Drainage Water Supply Commission went out of exist-
ence, I was continued in the service of the city as assist-
4694 ant engineer with reference to its water supply until May of 1888.

In May of 1888, I was given the position of chief engineer of the water supply at Memphis, Tennessee, and at that time devised the scheme that has since supplied that city with water, and I also, as an engineer, constructed the works during the years of 1889 and 1890—I mean, 1888, 1889 and the early part of 1890, at a cost of some six hundred thousand dollars.

The first of April, 1890, I was given a position with the Chicago Sanitary District, and my attention was engaged on that work exclusively until December of the same year, at which time I resigned; but in the course of that year's work my attention was quite largely devoted to a continuance of the processes of and an investigation—of the processes by which the Chicago Drainage Canal was afterwards dimensioned.

On leaving the service of the Sanitary District in Decem-

ber, 1890, after doing a little piece of work for the Board of Health of the State of Illinois, I took charge of the water supply of Savannah, Georgia. That was early in 1891, and as an engineer I devised the works which have since sup-
4695 plied that city with water and supervised their construction during the years 1891, 1892 and the first half of 1893, acting as consulting and supervising engineer.

In the summer of 1891, I was recalled to Memphis as consulting engineer in relation to an extension of that water supply, the doing of which occupied the following year or fifteen months.

In January of 1892, I was recalled to the service of the Sanitary District of Chicago and remained continuously in that service until the first of July, 1900, as assistant chief engineer, at times acting chief engineer, and during the last two years, or from August, 1898, until July, 1900, I was consulting engineer. In the course of my duties with the service of the Sanitary District, I had to look after the hydraulic elements pertaining to that work. It was a part of my business to keep myself posted as to the habits of the Desplaines river. In the course of that work, besides making those investigations and determinations which lead to the dimensioning of the Drainage Canal, I also made investigations and devised the arrangements at the terminus of the Drainage Canal at Lockport, including the sluice gates and the bear trap dam. I also made those investigations which lead to the dimension-
4696 ing of the river diversion of the Desplaines river from Summit to Lockport. I made investigations and examinations or determinations which lead to dimensioning the work of the Sanitary District through Joliet, and I reported to the Board of Trustees of the Sanitary District the project for the improvement of the Chicago river.

In 1895, I was consulted again in relation to the water supply of Memphis, Tennessee, and in the year 1898 I acted throughout that year as consulting engineer for the water supply of Memphis, Tennessee.

Early in 1898 I undertook as the engineer the plans and constructions of the Snoqualime Falls Hydro-electric Power Company in the State of Washington. I devised the plans for that work, and as consulting engineer, supervised the construction. I remained with that work until July of 1890, two and a half years.

In the summer of 1898 I was engaged by the Economy Light & Power Company of Joliet in relation with the construction

of their work at the Jackson Street Dam in Joliet, and through Joliet, excepting for a period when I withdrew from the service when litigation was pending; I served
4697 through 1898, 1899, 1900 and 1902, the first work having been completed by the end of 1900, and the second work undertaken in 1902.

In the year 1901—in the fall of the year 1901, I was recalled again to Memphis, Tennessee, as consulting engineer and served continuously from that time in that capacity until the first of the present year.

In 1901 I also understood the design and construction as engineer of the Swan Falls Hydro-electric Power Plant on Snake river, some thirty miles from Boise, Idaho. The work done at that time occupied about a year, at a cost of about $350,000; and at about the same time I was consulted in relation to water power development at American Falls on the Snake river near Pocatello, and also on the Payette river about twenty miles north of Boise.

In 1901 I also undertook the remodeling of the hydro-electric water power plant at Kankakee, Illinois. In that year, the next year, and I think the next year succeeding that I was retained by the electric power plant there, and in the last year rebuilt the dam across the Kankakee river at that point.
4698 That was in about 1903 or 1904. I think it was 1904 we built the dam. It was in the last year that we built the dam.

In the summer of 1903—or rather first in the winter of 1902-3 I made plans for and supervised the construction of the masonry aqueduct across the Pecos river in New Mexico; also made an examination of the Gila Bend irrigation project on the Gila river, Arizona.

In 1903 I undertook the design and construction of the hydro-electric power plant built by the Oliver Chilled Plow Works at South Bend, Indiana. That work occupied all of 1904 and part of 1905.

In 1904 I undertook the construction of the hydro-electric power plant for Mr. Conn at Elkhart, Indiana, and was consulted at that time and before and since in relation to a number of water power plants in Central Wisconsin, and also one in New York State on the Oswego river.

In 1905 I undertook the extension of the hydro-electric power plant on the Snake river near Boise, Idaho, and was connected with that work through all of 1905.

In 1906 I repaired and practically rebuilt the dam on Black river near Cheboygan, Michigan.

In 1907 I acted as consulting engineer in relation to a hydro-electric power plant on the Rainy river, in Wisconsin.

At the present time in this year I am doing some work
4699 for the City of Chicago in relation to its water supply.

In the course of my work I had made plans for and supervised the construction of the Summit spillway for the Chicago Drainage Canal; Dam Number One at Joliet for the Chicago Drainage Supply; a dam across the Snoqualime river in the State of Washington; a dam across the Snake river in the State of Idaho; a dam across the Kankakee river in the State of Illinois at Kankakee.

I have remodelled and repaired the dam across the St. Joseph river of Michigan at South Bend, Indiana; across the Black River at Cheboygan, Michigan; across the Rock river, Beloit, Wisconsin; and I have examined in one way or another in a professional way dams at Oswego, New York; Holyoke, Massachusetts; the Davis Island dam across the Ohio river below Pittsburg, and the next dam below that across the Ohio river, I believe that Beaver Dam, it is so-called; the dam at Three Rivers on the St. Joseph river in Michigan; Constantine on the St. Joseph river in Michigan; Elkhart, Indiana, on the St. Joseph river; at Mishawaka, on the St. Joseph river in Indiana; at Waldron on the Kankakee river in Illinois; at Kankakee on the Kankakee river in Illinois; a dam in the vicinity of Wilmington on the Kankakee river in Illinois; the old

dams Number One, Number Two and Adam's Dam in
4700 Joliet; the dam across the Illinois river at Marseilles;

the dam across the Rock River at Sterling; across the Fox river at Dayton; across the Fox river at Elgin; across the Chippewa river at Eau Claire, Wisconsin; across the St. Croix river, about forty miles from St. Paul; across the Kaushawa river in Northern Minnesota; across the Rainy river at Koochening, Minnesota.

I have also inspected, but not in a professional way, the dam across the Mississippi river at St. Paul; a dam across the Pecos river in New Mexico; across the Gila river about thirty miles from Phoenix in Arizona that I recall now.

I have also examined a number of rivers in different parts of the country with regard to their habits in relation to water powers and dams of which I have just spoken, and have also had to do in a professional way with the earthen embankment on the river diversion of the Drainage Canal, along the banks

of the Illinois and Michigan Canal; to some extent with the levees in the Lower Mississippi; in improvements in relation to the irrigation work at Carlsbad, New Mexico, and with regard to the engineering—the irrigation work to a certain extent near Boise, Idaho, and the reservoir dam at Seattle, Washington.

4701 The last one I mentioned was the reservoir wall, or reservoir embankment at Seattle, Washington. The first reference made to the Desplaines river was 1887. I had supervision over the gauge readings of that year, but I stated that I had charge of the making of the flow measurements of the river at Riverside in the fall of 1887. I cannot state from personal knowledge who established the gauge at Riverside. It was established in 1886.

When I was connected with the Economy Light & Power Company in 1902 I think was the last work I did on the Desplaines river. I had occasion to examine the river with reference to the drainage in the case of the Sanitary District against Adams, where I appeared as a witness for the

4702 Sanitary District. That was a condemnation suit, the Sanitary District condemning the dam. The purpose of that proceeding on the part of the Sanitary District was in part to show the character of the river. I made an examination at that time. I don't remember the year of my first experience with the river. I suppose it must have been about 1894, 1895, not far from that time.

I had particular charge of the collection of the gauge readings during the time that I was connected with the Sani-

4703 tary District of Chicago. That covered in all about nine

4705 years. I had immediate supervision over the collection of those gauge readings in my service with the Sanitary District in the year 1890, and from January, 1892, until July 1, 1900. In the period of 1890 Mr. Cooley was my superior officer and I reported to him.

I know what relation the regularity of the recurrence of certain stages of water has to do with the possibilities of navigation of the stream in which the water flows. As

4706 to stages of the river when it might, under certain circumstances be navigable, recur with irregularity as to time and extent, then in a measure the feasibility of navigation is diminished.

As to what gauge readings I have considered with reference to determining the regularity of the flow in the Des-

plaines river, in addition to those made under my own
4707 supervision, I examined the gauge readings reported for the Desplaines river between 1896 and 1904 inclusive, as published in a government document entitled "59th Congress, First Session, House of Representatives, Document No. 263." I have carried my examination of the gauge readings down until the end of the year 1904. The period when I had supervision over the collection of the gauge readings was immediately preceding this.

Including the year 1886, when I did not have in so high a degree supervision over the gauge readings as I did subsequently, they extend from the beginning of the record of that gauge in 1881, down to the end of the year 1904.

Q. Mr. Johnston, I wish you would state the result of your investigations, as to the times when a stage of 12.4 feet was recorded during that period, with special view as to the regularity of the recurrence of that condition.

COUNSEL FOR COMPLAINANT. To that I object. We had to produce the gauge readings and put them in evidence ourselves.

4708 The COURT. Overruled.

COUNSEL FOR DEFENDANT. In your answer state also what 12.4 feet mean so far as the water in the river is concerned.

A. 12.4 feet on the Riverside gauge corresponds to a flow of 305 feet per second approximately, passing through the river at that point, and to a stage of the river one foot above the stage at which the flow ceases, or becomes so small as to be of no significance in that period of time. In the period be-
4709 ginning in 1886 and terminating early in 1896 as tabulated—I have tabulated the results, with the results as follows: That in the month of January the record was complete for six years, and that twice in this period the month of January showed an average flow of 305 cubic feet per second or more.

Thereupon objection was made by counsel for complainant that the witness was reading from a memorandum, whereupon counsel for defendant agreed to have typewritten copies of same made and given to counsel for complainant. The witness continued reading.

4710 The record was complete for the month of February seven years, and four times the flow reached 305 cubic feet per second or more.

In March the record is complete for seven years, and the flow before stated was reached or exceeded six times.

In April the record is complete for six years with a recurrence of the flow as before described four times.

May, six years, recurrence of the flow three times.

June record complete seven years, recurrence of the flow three times.

The July record complete seven years, a recurrence of the flow two times.

4712 COUNSEL FOR COMPLAINANT. I only want to know whether the witness in giving these dates means so many days in each of these months. I do not understand the answer. I want to know, Mr. Johnston, whether these days you are giivng are the days for each month of each year or not? You speak about the seven years in your answer, and that confuses me so that I don't understand what you mean. Do you mean now, so many days for the month of March each year for the seven years, or during the month of March for a certain year or the month of April. If you will kindly make that clear to me I will be obliged?

A. I referred to the whole month in each year. The period covers some nine years and the records were not complete in every month of every year, and I was stating the number of months first in which the records were complete for the whole month, and then—

The COURT. That is, the number of months—the number of Januaries, in those nine Januaries in which the record was complete for the whole month?

A. Yes, sir.

4713 Q. That is, there were six Januaries out of the nine in which there were complete records for the whole month.

A. Yes, sir.

Q. For every day of the month?

A. Yes, sir.

COUNSEL FOR COMPLAINANT. And you are giving the number of days now in each of these Januaries, or the average for these Januaries, during these seven years.

A. No, sir, I am giving the number of times that the average flow for January reached or exceeded 305 cubic feet per second.

Q. In the six or seven years as the case may be?

A. In six or seven years as the case may be.

COUNSEL FOR COMPLAINANT. That would mean two Januaries out of the period?

A. Yes, sir.

Q. The whole of the month of January?

The COURT. Q. You mean twice during the entire month of January or on a number of days in all of the six Januaries, that would be in the number of days, in a hundred and eighty days—

A. No, sir, it would be the average for January twice.

4714 Q. The average that is, of the six—two out of the six —two Januaries out of six show an average of 305 or more?

A. Yes, sir.

COUNSEL FOR COMPLAINANT. For a month, your Honor, as I understand it, not the days in the month, but for the month?

A. For the month.

The COURT. Q. For the entire month?

A. The flow of the month divided by the number of days.

Q. By the number of days in the month?

A. Yes, sir.

COUNSEL FOR COMPLAINANT. Now, go on.

A. The August record complete in eight years, in no one month or at no time rather, did the flow occur as before described; and also in September the record was complete for eight years and in no one month of September did the flow average as much as before described.

For October the record was complete nine years, and the flow above described recurred but once.

In November the record was complete for eight years, and at no time did the flow above described recur.

For the month of December the record was complete five times, and the recurrence of the flow only once.

4715 In a total of 84 months—I should have said five years —The record was complete for 84 months in this period and in 26 of those months the flow averaged 305 cubic feet per second or more. Thirteen times the average flow of 305 cubic feet per second or more occurred in 25 winter months, the winter months being December, January, February and March. The other 13 times occurred in 59 summer months. Four times it recurred in two consecutive months and only once for three consecutive months during the eight summer months. That answers the question as far as the record of the average readings goes, as before stated.

The COURT. That is, out of 25 winter months the river 13 times reached 305.

4716 A. Four times in the period in the summer months with the flow recurring two months in succession; once it recurred three months in succession.

The COURT. Q. Never oftener?

A. Never oftener.

I have made a further tabulation from the gauges—this covers the period when I had supervision of the—although in the record of 1886 I did not have the supervision over it in as high a degree as I did subsequently.

I have examined the gauge readings at Riverside as printed in congressional document entitled "59th Congress, First Session, House of Representatives, Document No. 263," for nine years, 1896 to 1904, inclusive. The record is given complete in all these months, in all of the months for all of these years, and I have taken and picked out those months in which the gauge readings average 12.4 feet or more on the

4717 Riverside gauge, which would correspond to a flow of 305 cubic feet per second or more. In this table, the record being complete for each of the nine years, the average gauge reading 12.4 feet recurred in two Januaries; six times for February; eight times for March; eight times for April; twice for May; three times in June; twice in July; no times in August; twice in September; once in October, twice in November and once in December, a total of 108 months, and the average gauge reading of 12.4 feet recurred 37 times in that period, of which 17 times were in the four months and 20 times in the eight summer months.

That is for nine years next succeeding the period that I have testified to in the other table. Four times this average gauge reading recurred two months in succession, and once three times in succession. There never was a period when it occurred for more than three months in succession in the summer months.

In all the years where these gauge readings are shown there are certain months when no water passes the gauge. Of

4718 a given month in each of these years there will be times when no water passes the gauge; either that—that is absolutely true, frequently, but very frequently when there is either no water flowing or the quantity is so small as to have no significance.

The COURT. Q. you mean so small as not to be recorded on the gauge?

A. Yes, sir, as not to be measurable on the gauge of the river.

4719 The gauge most all of the time has been a staff gauge. At one time there was what was called a self-recording gauge, established at Riverside, at the site where the staff gauge is located, something like a quarter or a half mile from the railway station at the bank of the river. The staff gauge is a piece of wood perhaps four inches wide and three-quarters of an inch thick, upon which are marked the distance of feet and fractions of feet. That is fastened to a post or nailed to a tree or otherwise, held in position so that one extremity of it is always in the water, the site being chosen where the bed of the river is a little lower than in other places, so that if there is no water at all in the river, the end of the gauge would still be under water. The gauge readings taken on the gauge indicate—the reading on this rod or staff

4720 where the water surface at any time may happen to be, having all of the gauge readings at a given gauge, the readings have a relative significance as to the river being higher or lower. It is the engineer's object to run levels and determine where the elevation of the mark of zero on that gauge would be with reference to some datum which is in common use in the region for making those references, as for instance, Chicago datum. On that gauge the point of no flow is marked about 11.3 above Chicago datum, or very closely that. Those figures that I have been giving are on 12.4 feet, I have run on that gauge. The zero of that gauge had reference to Chicago datum, and a reading on that gauge corresponding to no flow would be 11.3, very close to that.

When the water was 12.4, it would be 1.1 foot deep, about a foot and 1¼ inches.

COUNSEL FOR DEFENDANT. Q. Now, as I understand you, the gauge is set in a hole or place steeper than the ordinary bed of the river, so that water will be flowing over it in

4721 days that it would not in the ordinary bed of the river, is that right?

A. Standing around the gauge even if there was no flow in the river.

The COURT. Q. You record all measurements then above the zero, do you?

A. Yes, sir, above the zero of the gauge.

The first reading on the gauge is the lowest reading ever contained in the record. The gauge would be 11.3 feet and none of the readings below that point would be noticed.

The COURT. Q. 11.3 would reach the minimum?
A. That would correspond to no flow.
The COURT. Q. What is it you say as to the zero of
4722 the gauge in reference to Chicago datum?
A. In this case it is Chicago datum.
Q. And then what is your—how many inches did you say?
A. 11.3 feet.
11.3 feet in relation to that river is simply at the point to be marked on that gauge at which no flow takes place. That means no water or not enough water to be measured on the gauge. That is not enough water to flow, or to raise the river above a level corresponding to no flow in any degree that can be measured. For instance, a one-hundredth of an inch could not be measured or would not be measured. When there is no flow of the river, that means that except in pools the thing is dry, that you could walk across the stones, walk across the bottom of the river without wetting your feet unless you stepped into a pool; usually means there would be points where you could cross—
COUNSEL FOR COMPLAINANT. That would depend on the slope of the bank?
4723 The COURT. I am asking him whether the elevation of the bed at this Riverside gauge is this level of 11.3 feet above Chicago datum.
4724 As to whether that gauge is on a level at zero with the bar would say, no, the zero of the gauge is considerably below the bar, ten or eleven feet. The lowest reading that the water reaches on that gauge reads 11.3. 11.3 feet on that gauge is on a level with the crest of the bar; yes sir. Zero is Chicago datum. 11.3 on that gauge which is to represent the beginning of the flow of the river is on a level with the crest of that bar that forms the border of the pool into which the gauge measurement, the gauge stick is placed; on a level with the lowest point on the crest of that bar. I mean
4726 the lowest point over which any water can flow.
COUNSEL FOR DEFENDANT. What I want to get at and the question we started with was whether in each month in each year of the nine years that you have a record whether or not there were times in such months when no water flowed over the bar?
A. Yes, sir.
Q. That is, in each month in each year of the nine years there were times in such months when no water went over the bar, is that correct?

A. Well, that is not the way I understood the question before. That may or may not be entirely true.

The COURT. Q. That would depend upon the daily readings and you have not given us that? You have only given us the average for the month?

A. That is all, and I do not know whether I am prepared now to answer that question.

4728 The court then held that the 1905 Government Reports already introduced in evidence were the best evidence.

The WITNESS. I spent a considerable portion of time in studying the habits and characteristics of western rivers. That was for the Government of the United States. The object of the studies was to devise processes and ways in which to accomplish river improvement. I took notice of the habit of the river for that purpose, in fact.

Q. What, Mr. Johnston, if you know, are the elements to be considered in determining whether or not a river is navigable in fact.

4729 COUNSEL FOR COMPLAINANT. I think this is cross-examination.

The COURT. No, I think not. He may answer.

A. The quantity of water that may flow in a stream, the extent of the boundaries of the stream, or in other words its confines; the regularity with which different stages of the river may recur, whether they recur in periods when the river can be navigable or when it cannot be navigable on account of ice, and also the declivity of the river in relation to the narrowness of its confines and the declivity constitutes I believe in general the elements that would be called for by the question asked. The character of the bed, whether rocky or sandy, or of boulders would be an element also.

I am familiar with the Desplaines river for about all of its length from its headwaters to the junction with the Kankakee river.

Q. Will you state whether or not in your opinion the Desplaines river is navigable for the purposes of commerce?

COUNSEL FOR COMPLAINANT. That we object to, if your Honor please. It calls for an opinion and for his opinion, not on the case stated, but on facts not stated, because there

4730 is no foundation for his opinion as an expert in navigation, and the answer is irrelevant, incompetent and immaterial.

The COURT. He may answer.

A. It is not.

COUNSEL FOR DEFENDANT. Q. Has it been at any time since you have known it?

A. No, sir.

COUNSEL FOR COMPLAINANT. I object. I suppose it may be taken that the objection as made to this first question may stand to all questions without repetition.

The COURT. Yes.

Q. Why in your opinion is it not navigable?

A. The upper Desplaines River above Riverside is not navigable because of the small quantity of water that flows in it most of the time; also on account of the narrow confines of the river bed; also of the irregularity with which certain stages of the river recur when it otherwise might be navigable, when they recur with reference to time and extent; also because the recurrence of those periods when the river might otherwise be navigable is for so much of the time in the win-
4731 ter months. The river between Riverside and Lemont in what is known as the twelve mile level would not be navigable for these same reasons, except as to the narrowness of the confines of the river. The river from Lemont to its junction with the Kankakee would not be navigable for all of the reasons which apply to the upper Desplaines above Riverside, and in addition because of the declivity of the river being in general so steep and the nature of its bed so sinuous and rocky or obstructed by boulders in a degree that would render its navigation dangerous.

The declivities extend from Lockport to Lake Joliet, a distance of about eight miles, approximately that. The fall from Lockport to Dam No. 1 is about forty feet, in four and a half miles. From there to Lake Joliet, a distance of about three and a half miles, the fall is twenty-one feet. To Lake Joliet, a distance of approximately five miles, there is no fall at low water. At the foot of Lake Joliet down through Treat's Island for a distance of a mile the fall is about nine and a half feet, and then a distance of about a mile with no fall, and a
4732 distance of another mile with two and three-fourths feet fall, and a distance of about three miles with about two feet of fall, and then a distance of half a mile with about three feet fall. The bed of the river at that point is of boulders. The current is very rapid. It is south of where the Economy Dam is being built.

Between Dam No. 1 and Lake Joliet the minimum width of the river, before the drainage water was poured in, was perhaps sixty feet. The character of the bed of the stream there

would be, barring a little dirt on the surface of the bed of the stream, rock and boulders. There were islands below the old Adam Dam, from there to Lake Joliet. The characteris-
4733 tics of the islands,—are principally of boulders, with some dirt and maybe a little brush growing on them. The bed of the stream was usually of boulder formation.

The river at Treat's Island was split up by islands with channels irregularly passing through them with a rapid current passing in the channels, which were perhaps a hundred feet wide, or such a matter; and its sinuosity was quite crooked. There were boulders there. What the slope may be would depend something upon the distance or the length of the river taken into consideration. The slope of the river in general from Dam No. 1 to Lake Joliet, is about eight feet to the mile, but at places in that reach of the river the declivity would be quite a good deal more precipitous, say in a distance of 100 feet or such a matter.

4734 The general fall at Treat's Island in that region was in a mile there say about nine and a half feet; some places in a distance quite a good deal more, some less. The maximum slope there per mile was I would judge, from having looked at it without measuring it, it might run say to fifteen or even twenty feet per mile for a short distance.

Thereupon counsel for complainant moved to exclude it, on the ground witness did not measure it and does not know and puts it in as a guess.

The COURT. It may stand.

COUNSEL FOR COMPLAINANT. If the court please, where a man is put on as an engineer to give measurements and says "I do not know, I just looked at it"—

The COURT. It stands only as an estimate, according to his statement.

The WITNESS. As a rule points of steep declivity become drowned out as the stages of the river rise.

4735 Q. Would it be true then that a river which retained a higher stage or a high water stage for a considerable period might be navigable even though its slopes were very steep?

COUNSEL FOR COMPLAINANT. To that I object, your Honor, as suggestive and leading and improper generally, I think.

The COURT. He may answer.

A. That is true.

The WITNESS. The Desplaines in the neighborhood of Riverside, at the Riverside gauge, would not be affected at all or

could not have been affected by the deep cut, the diversion of the Desplaines, the deepening of the Illinois and Michigan Canal, or the building of the Sanitary Canal or the Ogden ditch,—because the Riverside gauge is at an elevation above the field of influence of the causes I have just named.

The construction of the Illinois and Michigan Canal opened in 1848, with special reference to the question of per-
4736 colation, would not, in my opinion, have any influence on percolation from the Desplaines river. It would not affect at all the discharge of the Desplaines river, in so far as percolation is concerned. In cutting off a part of the drainage basin of the Desplaines river south of the Illinois and Michigan Canal, it would have some influence, but a very little, because the flood waters from the region in question would naturally run off in the earlier periods of any rise in the river and be gone before the low waters from the head waters of the stream would come down.

The character of the river is that they rise generally very quickly and subside with greater or less rates of rapidity. The higher stages subside quite rapidly as a rule.

The flow of the extreme maximum to midstate would ordinarily diminish within the record within three or four days, and a rise of that kind, without any supplemental flow of water from another point would ordinarily have flowed off in that time.

4737 The cutting of the Chicago Divide in 1852 near Kedzie avenue had the effect of causing the waters of the river to flow away somewhat faster than they would have done naturally, to the extent that the reservoir capacity in the Mud Lake District was destroyed. The extent to which that influence would be exerted would depend upon several considerations, particularly the rate at which the river might naturally be subsiding; but taking that influence in connection with the other similar influence in the other twelve mile level, and the influence of cutting off the basin or that part of the basin south of the Illinois and Michigan Canal, and the influence of the Ogden Dam, and summing them altogether, the duration of the low water stages would not in my opinion be affected by the presence or absence of those influences by more than ten per cent. at any time.

4738 In my opinion the deepening of the canal in 1866 and 1871 did not have any effect upon the amount of water discharged into the Desplaines river.

The river diversion of 1892 and 1894 eliminated substan-

tially the reservoir capacity of the twelve mile level to which I have already referred.

The opening of the Sanitary Canal in 1900 had no
4739 other effect than what was involved in the drainage canal, in the river diversion, except one.

4765 In my opinion the combined influence of the causes heretofore referred to would not exceed—would be such that the presence or absence of those causes would not affect the duration of the low water flow more than ten per cent. at the time.

Q. Now, Mr. Johnston, what if any effect did these works have upon the water in the Desplaines below the point of discharge of the Illinois & Michigan Canal, taking into account the water delivered into the river by that canal as compared to the addition which the canal made to the water of the Desplaines below the point where it entered into that river?

4766 COUNSEL FOR COMPLAINANT. To that I object. Before he answers I would like to have that point located by some physical object if it can be done.

COUNSEL FOR DEFENDANT. All right, locate on the map where the canal discharged into the Desplaines.

The Summit level of the Illinois and Michigan Canal extends from Bridgeport in Chicago to Lockport, Illinois, as indicated on Woermann's Exhibit 4.

The particular location of the first lock does not appear to be shown on this map, but in any event it is in the Village of Lockport, as I understand the boundaries of the village.

The effect, prior to the making of what is known as
4767 the deep cut in the canal, which was made in the latter sixties and early seventies, mostly the latter sixties, I believe was to augment the flow of the Desplaines river below Lockport to the extent that water was fed into the Illinois and Michigan Canal from Lake Michigan, or from the Calumet Basin through the so-called Calumet feeder.

Q. How did that amount fed into the canal and thence into the Desplaines river compare with any loss that the Desplaines river may have suffered by reason of the works that we have recited in the previous examination?

To which question counsel for complainant objected on the ground that the question assumes a state of facts to exist of which there is no evidence, and for which the evidence of this witness affords no foundation, and does not connect with what the witness has been saying at all; and that the question calls for a summary of

events without giving the elements that make it. In other words, it is a conclusion of the witness without giving the facts upon which it is based.

The COURT. Overruled.

4768 Thereupon follows colloquy of counsel as to the right to have the witness summarize all the various causes.

COUNSEL FOR COMPLAINANT. My point if your Honor please, is a little bit different. The witness says that the canal feeds into the Desplaines river at Lockport. If I understand his answer, that is what he means. Is that what you mean?

The WITNESS. I have seen it doing so, yes, sir.

4769 COUNSEL FOR COMPLAINANT. I asked when the question was first put that the point of in-take from the canal into the river, and the point of outflow from the river to the canal, be fixed so that we could know what it was he was referring to.

The COURT. I must have been distracted when you asked—talking to the bailiff. I didn't hear it.

COUNSEL FOR DEFENDANT. Read Mr. Starr's statement.

(Statement of Mr. Starr read as follows: "Before he answers I would like to have that point located by some physical object if it can be done.")

The COURT. The witness may testify, may point out the point of in-take and outflow that he is referring to.

COUNSEL FOR COMPLAINANT. You say the in-take from the canal into the river was within the limits of Lockport? Where is the point of outflow?

4770 The WITNESS. As I said, it is not indicated clearly on this chart. It is at—as I have seen it discharged, at the four mills at Lockport, what is called the basin.

COUNSEL FOR COMPLAINANT. That is, the canal into the river?

A. From the canal into the river. The point of in-take of the water were at the south fork of the Chicago river, and also from the Calumet feeder at the point known as Sag on the line of the canal.

4773 From the time, 1848 up to the time the deep cut was made, the canal was fed in greater or less degree at the Bridgeport end of the canal in Chicago. At certain times, it being fed for navigation purposes, and at other times at the instance of the City of Chicago for purposes of drainage. And while the—I am unable now to lay my hands upon the records of the pump operations there, but I have in the past read them, and in my opinion, in the light of those records, there were times when the effect of the addition of Lake Michigan

water and the Calumet river water to the canal must have considerably exceeded any losses that were due to the causes to which I have already testified. As to the particular length of those times, I am unable to state now, but there were
4774 such times and I think of quite a little period.

When the deep cut was made it had the effect of allowing water to flow back rapidly from the Chicago river through the Illinois and Michigan Canal to and below Lockport.

The quantity of water fed through the canal due to the deep cut was in excess of that which could have been due to the loss, as to which I have testified. The proportion was, I should say, may be eight or ten times as much excess, taking it through a period from the time of the deep cut down, say, until 1900.

4775 The data pertaining to the capacity of the canal at the time of the deep cut, Chicago river datum, indicated a flow of about 12,000 cubic feet a minute by gravity.

Counsel for complainant objected on the ground that the witness was being asked for the bald statement of fact which, in the nature of things he knows only from having consulted records of some kind or other, without the disclosure of those records.

4777 The Court. What are the records that you base this statement on?

The Witness. I have read all of the reports of the city engineer of Chicago, from back in the '50's, I think, as early as 1855, down to the year 1900. I have looked up at the reports of the Illinois & Michigan Canal in connection with my services with the Sanitary District, and I have calculated the flow of the water through the Illinois and Michigan Canal at different stages from its normal slope and depth, and at certain times I have conducted and directed measurements of the flow of water in the Illinois and Michigan Canal.

Q. What are the records on which you base your statement of 12,000 cubic feet?

A. The specific records on which I base that 12,000 cubic feet per minute I do not recall now, but I recall the amount from an examination that I have made in connection with my services with the Sanitary District to acquaint myself with the capacity of the Illinois & Michigan Canal.

The Court. I will let it stand.

4778 The Witness. The pumps were not used after the making of the opening of the deep cut, until the pumps started in 1884 by the City of Chicago at Bridgeport.

Q. And what, if you know, did they add to the volume going down the canal?

To which question counsel for complainant objected on the same ground urged in the last objection,—which objection was overruled.

A. The operation of the pumps subsequent to 1884 were not absolutely continuous, but through a large portion of that time a portion of the pumps came under my personal observation from the year 1887 along down to the year 1900, and judging by my personal experience with the operations of those pumps and the observation of them and such records as I had access to subsequent to 1884, I should say that the average flow, of all of that period pumped into the canal by the Bridgeport pump was not far from 30,000 cubic feet per minute,
4779 although at times the amount pumped has reached as high as 40,000, possibly 45,000 cubic feet per minute. I have conducted measurements of the flow at one time within my recollection now near Willow Springs, and found a flow, as I remember it now, of 632 feet, which is like 40,000 cubic feet per minute.

I know about what amount should have been taken out of the river by the canal at Jefferson street for the purposes of navigation. I investigated that subject two years ago to some extent for the Illinois and Michigan Canal Commissioners. The provision of feed water on that level so far as navigation was concerned, could not, in my opinion, be over 150 cubic feet per second, which would be 9,000 cubic feet a minute
4780 as a maximum. I have observed the stage of water, the depth of water of the Desplaines river in its various portions during the period exclusive of the spring freshets, and as it existed prior to the year 1900 when the Sanitary District turned in its water. The depth would vary from that which existed in its deepest pools, to at times nothing on the bars. I have seen the bars in the 12 mile level without any water on them for a considerable period.

I have seen the same thing at about the same time in other parts of the stream from Riverside down to Lemont and Lockport. The particular place that I have in mind now where I noted the pool of the river between the bars had evaporated so that the crest of the bar stood quite a distance above the level of the water, was opposite what was known as Section 2 on the Chicago Drainage Canal, a mile or so above the crest of Willow Springs.

I have seen the river above Riverside, not at the time
4781 of the spring freshets, and have observed its condition as to the stage of the water. I do not remember ever having seen it dry. I have seen it along its course, along up to Libertyville, at times when the river was very low. It may or may not have been dry at the time I saw it. I did not charge my mind particularly to note.

The flow of the Desplaines river prior to 1900 for an average of 7 or 8 months of the year, would be, as I would express it, as being not significant; that is, the quantity of flow would not be a determinative quantity by reading the gauge at Riverside.

I have observed the depth of the river below Lockport prior to 1900 outside of the period of spring freshets. I do not remember now seeing the river at any time when the Illinois and Michigan Canal was not delivering a considerable quantity of water into it, but it was on account of the increment of flow out of the canal water, the flow there that was not flowing above.

4782 The condition of the water from Lockport down, excluding any contributions from the Illinois & Michigan Canal of the Sanitary District channel, would be substantially the same as above Lockport; that is for 7 or 8 months of the year of no significance.

I am familiar with the conditions that existed above Adams Dam prior to the destruction of that dam, and remember the embankment between the canal and the river above the dam. As I remember it that embankment was a made bank of earth, presumably more or less gravel and stone mixed in with it.

The level at the bottom of the canal was not far from the level of the crest of the dam. The crest of the dam was about 60 feet below Chicago datum and the level of the dam of the canal perhaps 58 feet below Chicago datum.

The height of the bank of the river side, with the river at low water, or at the crest of the level—of the crest of Adams Dam, which is minus 60—the level of the bank minus 50 would be ten feet.

4783 The height of the bank from the top of the towpath bank of the bed of the river would be 8 feet more. That was the rise of Adams Dam. The width of the bank on top was about 12 feet. The inside of the bank was walled, and on the outside was a slope of perhaps 2 to 1 or such a matter from there to the water, as I remember it now. The inside was quite upright, nearly vertical.

One slope was built up in the nature of a dry wall, and the other was protected in the nature of rip-rap. I did not notice whether the waters had had any effect upon that bank. I do not remember now of any influence of the action of the waters of the Desplaines river on that bank. That bank extended half a mile or more, something like that as between the immediate river and the canal.

4784 As to the portion of the river where the Economy Light & Power Company Dam was under construction involved in this suit, I am familiar with the location where that dam was under construction. I am familiar with the character of the towpath bank there.

Q. What is the character of that bank as compared with the bank above Adams Dam?

To which question counsel for complainant objected, as incompetent and immaterial.

A. It was similar, a made bank. The material appears to be a stiff clay. As to how the material compares with the material of the strip above Adams Dam,—I cannot state specifically for the character of the interior of the embankment at Adams Dam, as I can down near the mouth of the Desplaines river, because I saw more or less of the material of which it was constructed at later places, that is, material on the interior of the bank.

Concerning the quality of the material of the towpath bank at Dresden Heights as to its durability or resistance to

4785 the effect of water,—it was quite radically suitable for the purpose of building an embankment.

I have seen prints showing the same thing that is on these two sheets marked Sheet 1 of plans of dams May 20, 1908; the first is a blue print and is marked G 1527, and G 1553 is the other. Whether they are exact copies or not I cannot state.

Assuming the formation of a pool by the work contemplated in these blue prints, that pool, if resting upon the towpath bank at Dresden Heights, would not effect the durability of that bank any further than what might be occasioned by the wave action. The effect of wave action could be prevented by riprapping the surface of the bank exposed to the wave action. There would be no necessity of riprapping the

4786 top of the bank or paving it, so far as wave action was concerned. I noticed about two months ago some riprapping or filing of stone on the beach, on the inside of the

canal. None of the navigable waters of the canal were encroached upon by that riprapping.

Q. Assuming if the dam is built in accordance with the blue prints which you have examined, state whether or not the pool level—state whether or not provision has been made to control the pool level, and the pool to be created by that structure.

Counsel for the complainant objected on the ground that the question calls for information that lies outside of the blue prints the witness is looking at,—which objection was overruled by the court.

4787 A. The plans show that such provision has been made.

4788 I should say that the provision as shown on these plans would have a level two feet below the top of the towpath, as proposed and shown on these plans—and that would be ample to take care of two or three times what the maximum flow of the stream might be at that point.

I have examined and know the location of the Kankakee feeder. It would be entirely feasible in case that feeder was restored to use, to convey the waters from the feeder to the canal without rebuilding the aqueduct.

Assuming that the pool has been created, according to the best engineering practice, the method that would be used for so conveying the water, would be by using what is termed sometimes a syphon or a pipe laid on the surface of the ground or immediately below it to and underneath the waters of the river. That pool would be a feasible and practicable thing.

Assuming that it was desired to restore, or to have navigation upon the feeder, it would be possible, with the ex-

4789 istence of this pool, to arrange so that boats could pass from the feeder to the canal into it, in this way.

The boats might be locked in the canal on one side, locked in the pool on one side and locked out on the other and vice versa.

I have examined the columns on which that aqueduct formerly rested. It would be impossible to use those columns in their present condition, in case it was desired to restore the aqueduct, because they are in an uncertain stage of stability, and one or two of them leaning more or less. They show the defects of age in a way that makes it quite conclusive that they should not be used at all.

It is a rule in rivers that the depth varies from point to point, and that formations known as pools and shoals will be met as the length of the river is traversed from one end to the other, growing out of the fact that its bed is not absolutely homogeneous in resisting the erosin of water, and
where the softer spots are, the water gets deeper than
4790 where the hard spots are. That condition of shallows
and pools will exist in all creeks having sharp declivities.

Cross-Examination.

I am not in the employ of the defendant company. I am employed to make certain investigations and to be a witness here. I was first in the employ of the defendant company in June of 1898. I was with them until about the first of August, in 1898, and then again from the first of December, 1898, to the first of January, 1901, and then from January to December 1902. That is correct I think perhaps within the error of a month.

I have had no employment subsequent to that time that could be measured in terms of time. They have asked me at one time or another to make some investigations or to do
some service in the nature of consulting work, perhaps
4791 taking two or three days at a time at one time or an-
other. That has occurred perhaps once in six months, may be a little oftener. My last employment at their hands was in the last year. That character of employment has
lasted up until the present time.

4792 Q. You have given us your experience as a civil engineer at considerable length. I want to ask you about some other phases of it. When was the last lawsuit in which you testified as an expert?

To which question defendant by its counsel objected on the ground that it was wholly immaterial; which objection was overruled by the court.

A. In the present week. That was at Madison, Wisconsin. The last one prior to that in which I testified as an expert, was about a month ago, at the City of Chicago. The one last before that was in February of the present year, at
the City of Chicago.

4793 Next prior to that I so testified as an expert, as near
as I can remember now, in February a year ago at Joliet, Illinois. Next prior to that I testified as an expert,

as I remember now, in January of 1907 in the City of Chicago. I don't recall now any other suit in 1907 in which I testified as an expert. Oh, I beg pardon, in 1908 I testified before the Legislative Committee in the City of Chicago early in January. My recollection is that it was early in January that I was called. It was about the first of January of the present year. I did not go there and give testimony in
that case at the instance of and on behalf of this defend-
4794 ant, I did not testify in their behalf in January, 1908,
nor in December, 1907. I did not go before the Legislative Committee, either in December, 1907, or January, 1908, and give testimony at the request of the Economy Light & Power Company or some one in its behalf. I was summoned there on a subpoenae signed by Mr. Shurtleff, I understand at the instance of the Illinois and Michigan Canal Commissioners. I cannot state of my personal knowledge whether it was so or not.

I was not paid for my attendance and service there, and was not promised pay, and do not expect to get any pay. In
the case in March, 1907, that I testified in, that was on
4795 behalf of the Economy Light & Power Company. In
January, 1907, I testified as an expert on behalf of the City of Chicago.

In the examination before the Legislative Committee the subject matter of the inquiry there was about this same dam that is the subject of controversy here. I have given you all the occasions in which I have testified as an expert during the years 1907 and 1908, as near as I can recollect now. I do not recollect any other occasions now during those two years in which I have testified as an expert witness.

I testified in a case pending against the Sanitary District of Chicago during the year 1907,—which I believe I referred to—it was a case pending between the—as I remember it between the Economy Light & Power Company and the Sanitary District of Chicago with reference to a water power proposition known as the Gaylor proposition at Joliet.

It is not my recollection that within the last couple
4796 of years or thereabouts and within a few months of each
other I testified in one case for the Sanitary District of Chicago and another against it.

I first entered the employment of the Sanitary District of Chicago the first day of April, 1890. I entered their employment at the request of Lyman E. Cooley. Mr. Cooley

was the chief engineer of that district at that time. My employment under him was as an under officer or employe. I continued at that time in the employ of the Sanitary District of Chicago until the 10th day of December, 1890,—from the first of April until the 10th day of December.

After that time I quite the employment of the Sanitary District. I resumed it again on or about the 20th of January, 1892. I remained in the employ of the Sanitary Dis-
4797 trict of Chicago at that time until the first day of July, 1900, or eight years and a half nearly. Then I left their employment, and did not resume it again. I have not been in the employ of the Sanitary District of Chicago since the year 1900.

As hydraulic engineer, I am at the present time doing some work for the City of Chicago. I have pending water power matters at Rainy river in Minnesota.

4798 Between 1892 and 1902, these two corporations did not have litigation in court, to my knowledge. It might have been between the state and the Sanitary District. I did not understand that Economy Light & Power Company was a party to the litigation at all.

The central thought was with regard to alterations to be made in Dam No. 1 of the Economy Light & Power Company at Joliet. I did not understand that that was owned by the Economy Light & Power Company. I understand that the waters that would flow past that dam were leased to the Economy Light & Power Company; that the Economy Light & Power Company had anything to do with the dam either by lease or property right I never understood. I understand that the Economy Light & Power Company had the power created by the dam but did not have the dam itself.

4799 I never understood that the matters in which I testified were matters involved between the leasehold interests of the power company on the one hand, and the Sanitary District of Chicago on the other. I understand that I testified in behalf of the Sanitary District in the litigation pending between the Sanitary District and the State of Illinois, in which indirectly the Economy Light & Power Company was a party in interest, and at that same time I was not in the employ of the Economy Light & Power Company, having withdrawn from their service. I had a vacation in their employment from the inception of that litigation until
4800 its termination, which was about four months. I did resume employment with the Economy Light & Power

Company after the litigation was over or after the consent decree of the court was given out. And during that interval of three or four months in my employment by the Economy Light & Power Company I was in the employ of the Sanitary District of Chicago.

I have appeared upon the witness stand, as an expert witness in various cases in the last five or six years, approximately three or four times a year. Five times, that is all. This is the fifth time during the present year, including the appearance before the Legislative Committee.

I do not know of a company known as the Brushingham Syndicate or Company, or the name of anything which is pretty close to that, nor does that suggest any company that had me in their employ at any time.

4801 I think I have a suggestion now dating back as far as 1894, when after having asked the Chief Engineer of the Sanitary District for permission to do so, and it being granted, I was employed by Clarence Buckingham. That occurred about 1894, as I remember. It wasn't 1898. I prepared plans for a water power scheme for them between Lockport and Joliet, which, if they had constructed would have used the waters of the Sanitary District of Chicago. While I was doing that I was also in the employ of the Sanitary District of Chicago.

On two occasions I have been employed by contractors, who brought suit against the Sanitary District of Chicago, and appeared as a witness in their behalf in court. One

4802 was a suit brought by Alfred Hartlive for damages on account of the forfeiture of a contract. Another was a suit brought by a Mr. Sexton being of the same nature.

In June, 1886, I was first employed in the City of Chicago. Not to live here; my business prior to that time was not here.

All the information that I have concerning any of the matters about which I have testified, my personal knowledge of them only extended back to 1886, and such matters as I have testified to prior to that time was information gathered from such sources from which an engineer usually gets his information.

I surveyed the bar that is in the Desplaines river

4803 a short distance below the Riverside gauge, in 1893. I have been at the site of those bars numerous times at various seasons of the year. In fact I have been in that

vicinity quite frequently. I have made it a point to examine the bars. I examined them in the sense of a survey, that is with an engineering object in view. I did that in 1893 and again in the summer of 1894, and at odd times since then. I remember it distinctly, but not always as to the point of time, because I have been there so many times that I naturally would not charge my mind with any particular time.

4804 One of the sources of losses to the river that I have already mentioned is the cutting of the divide at Kedzie avenue in 1852. I know of that by such information as engineers usually use in such connection. I have

4805 seen it in literature generally, and engineering literature pertaining to the time. Mr. Cooley prepared some of it. I don't know who prepared the greater part of it.

I cannot tell specifically without calculation how much water the Desplaines river lost by this cut I have mentioned. I won't say that I do not know, but I will say that I have not

4806 made calculations and cannot state at this time what the loss would be. In a certain sense, it is true that at this time I don't know. In this sense it is not true, namely, in that I have knowledge that there were losses. How much the loss is I am unable to state now, as I do not know. By virtue of the elimination of what is known as the 12 mile level, the Desplaines river lost some water naturally. I might add that I mean the elimination in regard to its width. Elimination means to rub out or take out. I mean by the elimination of what is known as the 12 mile level the restriction of its confines to a very narrow region. I cannot state how much water the river lost because of that.

4807 The segregation of the drainage basin southward from the Illinois and Michigan Canal by the construction of that canal also caused the Desplaines river to lose some of its natural waters. I mean that the building of the Illinois and Michigan Canal on one side of the river cut out the flowage into the river from that side. I cannot state at this time how much water the Desplaines river lost by that. To the extent that the Illinois and Michigan Canal was fed from the Desplaines river in early times there would be some loss to the Desplaines river.

4808 I cannot state how much water was lost to the river by that process; I do not know that. As to what other thing existed or came into being that caused a loss of water to the Desplaines river,—the Illinois and Michigan Canal at

Joliet, that is the feeding of the canal in Joliet, we will call that. I cannot state at this time how much water the river lost on that account. At this time I can think of no other thing or factor which existed whereby the river lost water that naturally flowed into it. I have mentioned the drainage of Mud Lake into the Chicago river instead of permitting it to flow into the Desplaines river. The cut made in 1852 at Kedzie avenue includes that.

I recall right now another construction that would
4809 have the same effect, and that was the same construction of the Ogden and Nickerson Ditches. There were two of them. I don't know the amount of water lost by any of them,—not to my personal knowledge.

I believe I have examined, for this dam that the defendant is proposing to put in the Desplaines river, as far as drawings are concerned, on two occasions only. I examined them on the ground once. I have not examined the specifications. There was handed to me here a few minutes ago two sheets of the plans of this dam, and I looked at them for perhaps a minute, each of them, or half a minute, each of them. I did make calculations to enable me to make the answers that were put to me from that examination.

4810 I was asked, as I remember it in that connection, whether this dam that was there being constructed as shown by these plans was capable of taking care of the flood waters that might come upon it; and I looked at the plan and within 30 seconds of the time I was asked the question I answered it. I arrived at my conclusion in this way,—

4811 I constructed a dam across Snake river in Idaho, having a spillway substantially the same as this crest of this dam. I had made calculations of that dam in Idaho and was familiar with it and was able to calculate at once what would be the spillway of the work at Dresden Heights. The amount of water I took as entering into that calculation that might come down this Desplaines river was about 25,000 cubic feet a second. There is the spillway and the tainter gates and water wheels, and some sluice gates, I believe. I don't remember without looking how many tainter gates there were; I think there were some sluice gates,—I am not sure without looking at the map. I remember there was a spillway about 400 feet long.

4812 Its length is as essential an element as any other element in the quantity of water that it will carry. Another element is the head in which the water will discharge

over the dam. An opening of a certain width through which the water goes is what I described as being the length of the spillway.

I do not recollect without looking at the plans how many wheels are provided for in this dam.

Q. And you feel that you have sufficient data in your mind from the casual examination or short examination made to-day, to enable you to make these calculations, and you did make them?

A. Yes, sir, to make such calculations as I have
4813 evolved in my answer. I have examined them at one time before. In making my calculations to-day I remembered and took into account the examination made before, to some extent; together with what I have seen in connection with works which I have constructed, on the Snake river, and what I have seen on these drawings.

4814 I won't say I saw numerous other plans, perhaps two or three sheets of drawings as I remember it now. That was two years ago possibly. I am not the consulting engineer for the Economy Light & Power Company. Had no connection with this dam down here; I did not state that I had been consulting engineer in that capacity, in connection with this work. It was in connection with the work at Jackson street in Joliet. 25,000 cubic feet of water per second is the largest amount of water that may be expected down that Desplaines river at the site of this dam.

I have taken in the ultimate capacity of the Sanitary District Canal at 10,000 cubic feet per second. The Sanitary District Canal has not a capacity for a good deal more
4815 than that, throughout its whole length and the low level of Lake Michigan.

There is a little portion of the canal that has not yet been built, as originally contemplated, as I understand it. The canal as contemplated at any time during my connection with the work, is completed now excepting the portion eastward from Summit. The plan did not contemplate when completed a capacity of 14,000 cubic feet instead of ten throughout its entire length. I did not understand it so.

It was given originally and during the time I was connected with the service of the Sanitary District a capacity of 10,000 cubic feet per second throughout its entire length. Lately a project of tapping a canal through the Calumet or Sag
4816 from Lake Calumet to the Drainage Canal has been spoken of, which under certain circumstances might re-

sult in 14,000 cubic feet per second being carried to Lockport and less than 10,000 feet from Chicago.

I have been at the site of this dam that is being built by defendant, in recent years once. I was in the employ of the Sanitary District of Chicago and in the first instance Mr. Cooley was my superior officer. I left the service at the same time that Mr. Cooley did. I went back again, after Mr. Cooley did and became a subordinate with Benezette
4817 Williams as chief engineer. I acted as chief engineer on several occasions. I was never known on the record as chief engineer. Besides Mr. Cooley and Benezette Williams, Isham Randolph was my chief officer.

I acted as chief engineer in the month of December, 1893, and in the month of April, 1900, that I recall now. On other occasions for perhaps a period of two or three days or a week in the absence of the chief engineer. It was on occasions when he was called away. My work in most all the work I have done has not been office work in contraven-
4818 tion of field work; in fact rather the reverse.

Q. While you were in the office with Mr. Cooley you did not do anything outside except when he divided his force on one occasion to make surveys in three different places, you were assigned to one of them and had one of them?

A. No, sir, that is not the truth.

Q. That is not true?

A. No, sir, it is not.

Q. That is all.

Re-direct Examination.

I was engineer for the Economy Light & Power Company excepting for a period of two or three weeks I was employed by the Sanitary District as consulting engineer. I had a general practice aside from that. When I testified in the case of the Sanitary District against the State, in 1898 I testified for the Sanitary District.
4819 I stated I had testified possibly four or five or three or four times a year during the last five years. None of it was for the Sanitary District. The fact that I was preparing plans for Buckingham in 1894 was known to the officers of the Sanitary District. It was known to the chief engineer, Isham Randolph. Mr. Buckingham consulted him before he spoke to me, and Mr. Randolph called me in and told

me the circumstances and left me at liberty to accept the employment.

In February of this year I testified in behalf of the City of Lake Forest, Illinois, in a controversy relating to a fair, just and reasonable water rate. About a month ago I testified in Judge McEwen's court, in this building, on behalf of the Crane Company in a suit or personal damages.

That suit in which I testified last year for the Economy Light & Power Company was a condemnation proceeding,—that is my recollection.

4820 The last time that I can remember that I was consulted by the Economy Light & Power Company at all with reference to its affiairs outside of my preparations for the trial of this case,—as I recollect it that was last August.

Q. This Calumet proposition by which 14,000 cubic feet of water per second is contemplated, has not been adopted, has it?

A. I do not understand that it is.

Q. Do you know what the attitude of the War Department is as to that project.

A. I think I do, yes, sir.

Q. It has not been supported, has it, or it has not been approved?

COUNSEL FOR COMPLAINANT. To that I object.

COUNSEL FOR DEFENDANT. That is a matter of common knowledge.

The COURT. Sustained.

GEORGE H. MUNROE, for complainant, testified as follows:

Direct Examination.

My name is George H. Munroe; residence Joliet; my
4940 business is mortgage loans and real estate in the summer season. In the winter it is raising oranges. I have lived in Joliet since the fall of 1862. I was eighteen at that time. I was in Will County before 1862. I was taken as a little boy fourteen miles south of Joliet on a farm. My father moved there in, I think it was the spring of '50, about '51, the fall of '51, perhaps. I only recollect once seeing the Desplaines river until I moved to Joliet. That was in the early summer of either 1853 or 1854. I saw it at the ford

near Channahon, crossing the Desplaines river; no bridge, but a ford. My grandfather and uncle started for California
at that time with ox-teams and father and I accom-
4941 panied them down to the bank of the river. We nearly
tipped over, the oxen running the wagon up on to some large hard-heads, sometimes called nigger-heads. I was very much frightened, and my recollection stayed with me a long time. Not a large amount of water; the water perhaps at that point in the ford might have been two feet deep in places, not all, and a great many hard-heads or nigger-heads in the channel. I moved to Joliet in 1862; I have seen the river, not every day, but a great many times since 1862, particularly since the spring of 1863. I had occasion to see the river a great many times. For two years I was travelling about the county as deputy sheriff for that time. I commenced going into the country in 1863, the summer of 1863, and 1864, and the winter as well. I did most of the outside work of the office, errand boy. I had occasion to see it fre-
quently during those years. The parts of the river
4942 that I became familiar with were from Channahon up
to Romeo, north of Lockport. The condition of the river above Lockport in the days before the deep cut was made in 1871, was that the greater part of the year there was not very much water in the channel. There were holes, wallows perhaps; a good deal of stone and nigger-heads in many places. One could at dry times almost go across it with shoes on with a little care; easily with the old fashioned leather boots. By the expression "very little water during the greater part of the year" I mean very little water running in the stream. Expressing that in the quantity of water, I don't believe there were six inches of water on the level, some holes deeper. Below Joliet prior to 1871, I have often
crossed the stream at different places, and many times
4943 wading in the stream, fishing. My knowledge of the
stream in those days went as far as the ford at Channahon, but more especially from below Joliet, below what is known as Malcolm's Dam, and then at Treat's Island.

The condition of the river before 1871 from Joliet down to Channahon was that the channel along the rapids some ways below Joliet, perhaps for half a mile down to near Brandon's bridge, there was pretty shallow places around Treat's Island, not enough water to pole a row boat up-stream. You might float one down perhaps, carefully, have to step out once in a while. That condition would remain a good many

months of the year. The seasons, of course, varied. Sometimes there would be a wet season when we would have a great deal of water, but there was times in the winter months that the water was as low as in the summer. In the ordinary season, after the subsidence of the spring floods, from that time up to say November first of that year, the water was very low, barring sometimes we would have summer
4944 floods and they would not last long, a few days. By the expression "very low" I mean about a stage that one could not push a row boat up-stream, there was not water enough. I recollect the nigger-heads and boulders south of which was about eighty rods from what is known as Jefferson street. There was a dam at Jefferson street, and Malcolm's dam, was about eighty rods below. It was latterly known at the time it was taken away as Adam's dam. In the stream from that point down, in that part of the stream with which I am familiar, there was a great many boulders; that is, from Adam's or Malcolm's dam south for some distance, a long distance, and the fall is quite rapid. I don't think I ever ran over what you call the rapids. I have had a skiff below the dam, but too much work to get it back. I have been below the Malcolm's dam in a skiff.

4945 I am interested in the lakes to the gulf proposition, for educational purposes for a waterway. The first convention of the association was lakes to the gulf, held at St. Louis, two years ago this fall; about twelve hundred delegates gathered there and organized this association. The next meeting was held at Memphis and the next one will be held in the City of Chicago in October, 1908. I am treasurer of that association. The purpose of that association is a deep waterway from the lakes to the gulf, and the special work of the association is to agitate and educate the people along the line. I know what is proposed to be done by the Economy Light & Power Company near the mouth of
4946 the river in a general way. I made investigations, for the purpose of ascertaining whether the building of this dam and the work would be an obstruction to that project. I wanted to know what their plans were, whether it was going to interfere with our waterway, their dam there,
4947 and from their plans and statements made—I saw the plans.

I have been in the river in a row boat since I first became acquainted with it.

Q. State whether or not the Desplaines river in the days prior to 1871 was capable of being used by boats for purposes of commerce.

COUNSEL FOR COMPLAINANT. We object to that, without qualification.

The COURT. He may answer that.

A. I don't think it possibly could be used for navi-
4948 gation; not enough water, too much falls, too many rocks.

COUNSEL FOR DEFENDANT. State whether or not, in your opinion, the Desplaines river, at the present time is capable of being navigated for the purpose of commerce.

COUNSEL FOR COMPLAINANT. Objected to for the same reasons.

The COURT. He may answer.

The WITNESS. I don't think so.

At the present time, there is plenty of water, but the current is so swift, and the rocks, boulders laying there, I do not believe it is safe to try to navigate it there. I never knew at any time in my life, of any navigation being carried on in this river. I never knew of a boat used for commercial purposes upon the river at any point. I never heard of any such boat, or any such navigation.

4949 I am no relation of Charles A. Munroe that I know of. I have no relation whatever to the Economy Light & Power Co.

I have been in the mortgage loan business perhaps fifteen years or twenty years. Prior to being in the mortgage loan business, I was brought up on a farm, and after coming on to Joliet was deputy sheriff for two years. In 1865 I entered the grocery business, retail grocery business, and I was
4950 in that for ten or twelve years, and went into the wholesale grocery business and for many years have been interested in the stone business. I am vice-president of the Western Stone Company at the present time, but do not give much time to it. My grocery business ran up to the time when I began to devote my time to the real estate and mortgage loan business. We buy and sell a good deal of real estate. At the time I left the wholesale grocery business I began giving my time to the real estate mortgage and loan business.

I was at Springfield as representing our district in the State Senate. I have given all of the different form of business which have been my occupation my time and attention

and which have been my occupation and they have taken
4951 the bulk of my time. In the winter I am looking after an orange grove, at which I spend about five or six months.

I think the Illinois and Michigan Canal was opened and in use when I first struck Will County, and has been ever since. I have not visited the proposed Economy Light & Power Company dam since they have commenced to work. I have visited the location several times before. I visited at Springfield during the session of the Legislature last spring. I used my influence and considerable time against the claim of the Sanitary Drainage District to build a sluiceway through Joliet. I did not meddle with the bill to remove obstructions from the Desplaines river very much one way or the other.

It was the Sanitary bill that appeared to be dangerous
4952 to me. I am in favor of the waterway and not so particular about the water power.

5063 WILLIAM P. GRAY, a witness for defendant, testified as follows:

Direct Examination.

My name is William P. Gray; age 63 next month. I reside at Pasco, Washington. My life business has been swift water steamboating. My last work was on Snake river. I began swift water boating when I was 15 years old on the Fraser river in British Columbia, swift water. I was operating batteaus, with my father, above where steamboat navigation ends. In the winter of 1860-1861, father and I built a sailboat 91 feet long and 12 feet wide at the head of the Okana-
gan river, took her down the Okanagan and Columbia
5064 river to the Celilo Falls. In the fall of 1861 I commenced operating on Snake river, helping, assisting my father, I was what they call the Batteau man. I went in a small boat and carried the lines up ahead so as to make them fast to rocks and stumps and then we would carry the line down and the large boat would catch hold of them and warp us. In that way I went over the river about three times every trip we made up. In 1862 I was running a sail boat, I was captain of a sail boat on the Columbia river from Celilo Falls to Wallula, Washington. In 1863 I went steamboating with my father, running from Celilo up the Columbia to the Snake;

up Snake river to Lewiston; up the Clear Water river to Lapwai. Pasco is at the junction of the Snake with the Columbia river. In '64 I was steamboating on the Columbia and Williamette, between Portland and Astoria as mate. In '65 I went as master and pilot of steamers for the
5065 Oregon Steam Navigation Company between Celilo and points on the Columbia river and tributaries as far as Lewiston on the Snake river and Priest Rapids on the Columbia. I continued in that business for two or three years. In '67 I was employed by the United States Engineers as assistant engineer and captain of a steamer to survey the rapids of the Columbia river between Celilo and the mouth of Snake river, doing all the soundings with a small boat myself, sounding all rapids ahead—in swift water it is very difficult to get soundings. We have to put a line away out ahead and swing the small boat on it. It is very dangerous where the water is swift and rapid and in amongst rock. I could not trust anybody else, so I had to go myself, between Celilo and the mouth of the Snake river. In '69 I was employed as master and pilot of passenger steamers by the Oregon Steam Navigation Company. In '70, '71 and '72 I was master and pilot and part owner of tug boats on the Columbia river bar, and tributary streams around Astoria. In '73 and '74 I was in the butcher business. In '75 I went on the Williamette river running from Portland through the locks up as far as Harrisburg, which is the extreme
5066 limit of navigation, and also navigated the Yamhill river as far as McMinville river, which is only navigable about two months in the year, a small stream. In '77 I was employed to take a steamer from Seattle, Washington, to Fort Wrangel, Alaska; then run her on the Stikine river, which runs—which empties into the bay eight miles above Wrangel, extending back into British Columbia. That is considered one of the most difficult and dangerous to navigate on the Northwestern coast. I was master and pilot; did not have any pilot with me, done my own piloting. The man that went up next year sunk her the first trip, but that was none of my business. In '79 I went back to work for—hold on, I am ahead—I went back to work for the winter on the Williamette and Yamhill, and in '78 was sent for back again onto the upper Columbia river to run steamboats up there as master and pilot. I don't know of anything to say about the Gov-

ernment boats. In '78 I was selected to run a patrol
5067 boat on the river carrying troops. During the Bannock Indian War I patrolled the river and kept the Indians from crossing, and made it possible for the troops to overtake them and capture all the Indians and ended the war. In '79 and '80, the same thing. In '80 was selected by the general manager of the Northern Pacific Railroad to go to Aimsworth and take charge of their transfer boats across the Snake river while they were building a bridge across the Snake river for their railroad. I was there until 1884. During '84 the president of the Oregon Railway & Navigation Company requested me to make a reconnaisance of the river of the Columbia river above Pasco, which had been declared impassable, the rapids had been declared impassable, and he wanted me to make a reconnaisance, and I did so and reported that it was possible to take steamboats up over the rapids in medium and high stage of water. My report was given to the United States Engineers and is embodied in the report of Engineers of the United States Army for 1884, and I worked for the Northern Pacific Railroad Company almost continuously until '94. In '95 I brought the steamer Norma from Huntington, Oregon, down through the Snake river canyon
250 miles to Lewiston, Idaho, where I had never seen the river before, and arrived safely. In '96 I was operat-
5068 ing at the Cascades of the Columbia in swift water for the contractors handling their scows and towboats.

The contractors were building locks for the Government around the cascades of the Columbia a canal and locks. In '97 I was master and pilot on the Columbia river between Astoria and Portland. In '98 I drew plans and superintended the construction of two steamboats with the Klondike Mining Trade Transportation Company of London, England. I built the boats and put one of them—started up to Fort Wrangel with one of them and had a pilot that ran me out onto a rock, busted it, wrecked it, but was sent on to another boat up there and ran her that season for 27 trips on the Stikine river without an accident. In '99 I fitted out a stern boat at Seattle, Washington, took her up across the North Pacific Ocean and Behring Sea to St. Michaels, took a load on at St. Michaels and continued on up to Dawson on the Yukon. There I met a captain who wanted to stay in all winter and I wanted to go on out, and I took his steamer and ran her up 480
5069 miles to White Horse, which is the head of navigation on the Upper Yukon; had no pilot on it, never had seen the

river before. The only place I had a pilot on the whole trip was St. Michaels to White Horse, a distance of about 2,200 miles, was 90 miles over the Yukon flat. I returned to the Yukon during 1900 and 1901, was carried out on a stretcher that fall and refused to go in.

In 1902 I was engaged by the Northern Pacific to run a steamboat on Lake Couer de Alene, and the St. Joe river and ran there until 1904. Then the Northern Pacific sent me over to Lewiston, Idaho, to run a steamboat in swift water where the other boys thought it was a little dangerous.

Q. Was that above or below Lewiston?

A. Above Lewiston, up through what they call the Wild Goose Rapids, and I ran there for about a year, and in 1905 I made a trip down over the Snake river and the Columbia from Lewiston, Idaho, to Celilo to the opening and dedication of the Oregon-Portage Railroad. In 1906 I was running on Snake river, carrying supplies and equipments to the contractors for construction of the Spokane, Portland and
5070 Seattle Railroad. From 1884 to 1890 I was captain and pilot. Out there we do not carry any pilot. The captain is the first pilot, he is supposed to—from '84 to '90 I was in the employ of the Northern Pacific in charge of their transfer across the Columbia river at Pasco during that period, six years. The bridge was completed—well, in '88 a company of people from Ellensburg,—a captain from the Mississippi river induced a company to build a steamboat to run from Pasco up the Columbia river through the Priest Rapids, Rock Island Rapids, and other dangerous rapids to the Okanagan country, where there were mining interests. Just before the boat was completed the captain went up and made a reconnaisance of the river, got cold feet and left the country. The company came to me and said that they built that boat on the strength of my report and asked me to take her. I had a lucrative business then in the real estate business. I neglected that and went up there and took that boat up and there—I got ahead of my time now again. In '87 the
5071 O. R. & N. Co., Oregan Railway & Navigation Company, the manager and officers, with General Gibbons, who was the Department Commander of the United States Army in Washington, with 120 soldiers went on a steamboat and tried to get her through—take her through the Rock Island Rapids. They got right into the Rock Island Rapids. They are on the Columbia just below Wenatchee. They failed to get through. Their captain failed them and I took it and took

her up through the rapids 220 miles up the Columbia river onto the Okanagan river and made several trips. You will find the Okanagan coming right down from the mouth. I took the boat up there and made a success, and they are now running boats up there above these rapids regularly. It is dangerous to take a boat over there, in fact, there was one wrecked coming donw last year, but I never had any trouble.

I think that I am competent to pass an opinion on the
5072 navigability of swift and shoal waters. I have seen the Desplaines river from Joliet to its junction with the Kankakee. I have been in Chicago before, in the fall of '92, in the fall of '92, from July to the 27th of December, '92. I was in the real estate business. I never saw the Desplaines river at that time. I was a commissioner from the State of Washington to the World's Fair. The first time I saw the Desplaines that I remember was yesterday. I saw it from a point at Joliet and the Kankakee, where they join the Illinois, make the Illinois.

Q. Will you state whether or not, in your opinion, the Desplaines river between the two points that you have
5073 named, Joliet and the mouth, is navigable river, capable of being navigated for useful purposes of commerce?

Objected to as irrevelant, incompetent and immaterial. Overruled.

A. It is not.

COUNSEL FOR DEFENDANT. Why not?

COUNSEL FOR COMPLAINANT. I suppose, your Honor, we may assume that that objection will stand to all subsequent questions without reception.

The COURT. Yes.

A. In the first place, commerce could not be handled, freight could not be handled on the river in competition with wagons alongside, as the current in the river, shoals, rocks and bars, would preclude the possibility of carrying freight enough on boats to make it commercially successful.

In my opinion, it would not be possible with safety to take boats engaged in carrying freight up or down the Desplaines river, because there are quite a number of boulders in the river.

As I have seen the river, of course, there may be some flow in it, but as I see it now there is not depth of water enough to allow boats to pass over with safety. The form of
5074 construction of light drafts boats is such that their bottom is very weak on account of having to be buoyant.

A small obstruction in the river coming in contact with the bottom would break a hole. That, of course, would be expensive to repair. A slight hole of six inches in diameter in the bottom of a boat would cause her to sink. The expense of—there might be such a thing as a skiff or something of that kind being taken down, but commercially I should say that it is not practicable at all to navigate the river. There are quite a number of boulders in the river. I determine that fact by my knowledge of water.

Q. At the mouth of the river where the dam is being
5075 constructed, assume that at those points in its natural condition the river had in its bed a very large number of boulders, some above the water, others below it, and that in its natural condition the river did not have to exceed 15 inches of water at any time during the season except in periods of freshet; what would you say as to the navigability of the river in that condition for useful purposes of commerce?

Objected to on the same grounds, and also on the grounds that the hypothetical case put does not conform to the evidence, and also on the grounds that it singles out four spots and omits the rest of the river. Overruled.

5076 I would say it would be less expensive to build a steamboat railway around the outside and let the river bed
5077 alone. It could not be navigated.

Q. You have stated that you took soundings in 1867 and 1868 under the survey made by Colonel R. S. Williamson, Department of the United States Engineers. Were yours the soundings that were reported as the soundings of the rapids and river?

A. No, sir, I was just—they were reported by Lieutenant Heuer.

Q. Are those the soundings? I call your attention to the volume, part five of the annual report of the United States Engineers, United States Army for 1891, on page 3214, thereof, schedule of Snake river, showing slopes per mile, and ask you whether the slopes are at low or at high water, or at what stage of the river as given in that report?

COUNSEL FOR COMPLAINANT. I object if the court please. The report speaks for itself.

A. I cannot say positively that I know.

COUNSEL FOR DEFENDANT. Q. Pick out any of those and see what is stated there and then possibly that will refresh

your mind. This is the column of slopes per mile and there are different rapids?

5078 A. I recognize all those rapids, but we pay no attention to figures in steamboating. The slope per mile carries no meaning to a river pilot. He goes and he takes his boat over, judging the depth of water by observation, what he can go over satisfactorily, what he cannot is—

Being asked what the depth of water has to do with the navigability of a river at places where the slopes are high, will say the deeper the water the better you can navigate it, and in most of the places where the slopes are the highest the water is narrow and deep. That is true in places on the Snake river.

Being asked to give the character of the Snake river if I can, as to its width and depth, the part of it which is navigated, will say that on the shoals between Lewiston and Ripara where navigation is being carried on at all times, the river is, I should estimate, say between 700 and 800 feet wide. The shoals are—on the shoals it is wider, but the water is distributed over those shoals in such a way that with a boat drawing 2½ feet of water it would require four feet depth to proceed without touching the bottom, as at the break of shoal she will tip up the weight of her,—of course where there is a break the weight of her that goes out of water will bury the center. The stern wheel

5079 which is digging out the water from the bottom is digging away her support. Those two actions cause the center of the boat to drop and go down further and her natural draught when all of her whole bottom is in the water, consequently we expect to touch,—with a boat drawing three feet we expect to touch center on three feet six inches or four feet. In gravel you have got a great deal more surface to strike your bottom than you have—gravel or sand—than you have where it is rocks. If you have rocks or boulders they are isolated points and the boat will go with more speed. She won't have so much underpinning, as you might say. She strikes those rocks and they knock holes in the bottom. On gravel the blow being distributed all over don't make so much damage.

Q. Is it then true to say that in swift water if you have a gravel or a sand shoal you can go very much safer and more rapidly than you can if there are boulders?

A. Much more so.

Objected to. Overruled.

COUNSEL FOR DEFENDANT. Do you know the depth at low water at Little Pine Tree Rapids, on the Snake river?

5080 A. In extreme low water there is about two feet, that is at Little Pine Tree Shoals. Little Pine Tree Rapids are from six to eight feet of water in the channel. The river begins to rise in the spring about the first of April. It does not recede so as to interfere with navigation until about the first of August. From the first to the middle of August is generally the lowest water we have, and then it is low from the middle of August for about two months, or very close to the first of November. Then we have the fall raise. The high water in the spring is all caused by melting snows in the mountains. The fall raise is caused by rains which fall in the winter time, before they are frozen and turned

5081 into snow. These rises in the spring, this high water rises to a height of sixteen to twenty feet. It will commence at the first of April and generally about the last of May or the first of June is the extreme high water. It will gradually recede. It is a gradual rise and a gradual receding. Navigation is suspended at about eleven inches above zero, between ten and eleven inches above. That would be about—just about three feet over the bars. Aside from the bars we have all the way from eight to twenty feet of water in the river. There are spaces there where there is for miles we have from eight to twenty feet deep at low water.

Being asked if I remember what the velocity of the river is, or whether I have any accurate information as to that, will say we consider—of course, I have no accurate information, but it is generally considered that the velocity of the

5082 Snake river in high water is about eight miles an hour.

The effect of the raising of the water upon the slopes at these various rapids is that it equalizes the slopes so that the surface of the river is—that is, the currents are distributed—the current is distributed. That means that it flattens the slope.

5083 Q. Captain Gray, you said you were in the real estate business in Chicago for a year. Were you selling Chicago real estate?

A. No, sir, I was selling Pasco real estate. I am president of the Pasco Commercial Club.

Cross-Examination.

Q. I think you said, Captain, that you began work on the Fraser River in British Columbia?

A. Yes, sir.

Q. When you were thirteen years old?

5084 A. Yes, sir. That was in 1858, the fall of 1858. I was running a batteau, helping my father to run a batteau and carrying freight from Murderers' Bar, which was the upper end of the steamboat navigation to Fort Hope, and also we continued from Fort Hope to Fort Yale, through the rapids. There are a great number of rapids in the Fraser river. It is the second river in size on the coast to the Snake river—to the Columbia river. It empties into the Gulf of Georgia, which empties into the Pacific out of the Straits of Fuca just north of the 29th parallel. The total length that it is navigated from its mouth to the Canyon above Yale is about one hundred and thirty miles, may be more than that; I don't recall the exact distance, it is so many years ago. It is entirely on the Pacific slope. There is a pass at its head.

5085 The Canadian Pacific follows it down, follows down its north bank now. They came right into the pass and into the valley of the Fraser river. The old Hudson Bay route crossed the Cascade range, left the Fraser river at Fort Hope, followed the Samilkameen and crossed the Cascades across Manson Mountain, Deer Mountain, and over to the head waters of the Samilkameen, and where the Samilkameen empties into the Okonagen and the Okonagen empties into the Columbia. That is the route McDonald followed. He came through while I was at Fort Hope, I met him when I was quite a boy. McDonald was quite an elderly man at that time. He still continued to operate by batteaux above

5086 the steamboat navigation of the Fraser. The length of batteau navigation at that time was about twenty-two miles altogether. The width of the river at that stretch was from six hundred to 1,000 feet, I should say. There were several rapids in it. The Union Bar Rapid was a gravel bar, rather shoal. In low water there was about four feet of water on it. We went on up to Emory's Bar, which was a very narrow, swift rapid, and also a very;—the channel through there was quite deep, but it was about 300 feet wide. Where

5087 the water runs down through it was very narrow; it run through that bar in a curve and followed a cliff

around, but on the other side, on the left hand side going up was a big eddy, the current flowing around there. I don't suppose the current was over 60 or 80 feet wide and the navigation passed through that sixty or eighty feet strip there. I suppose at that one place it went about eight or nine miles an hour but it was just short, not more than a couple of hundred feet.

The next principal rapid was Hill's Bar; it was quite swift and there were large boulders or reefs that were scattered around through the river; the surface of the river from bank to bank was about 600 feet, but the channel, we had to go between rocks where it probably wasn't more than fifty or sixty feet wide. I know I was wrecked on a small boat there once.

These Pacific slope streams get their great water supply
5088 from the lofty mountains, and are quite thickly studded with boulders and erratic stones and cobbles that come down the stream. That was true of the Fraser. From Hill's Bar to the head of navigation was about three miles to Fort Yale. Then just above Fort Yale there is a fall, a canyon. The fall is right in the canyon with a little path on the outside and the boats and batteaux used to make portages to go down there. They carry around there. They sometimes would shoot the boat down stream. I never went over; I have heard them say there was about eight or ten feet fall; I couldn't say. I continued in this batteau navigation during 1859 and part of 1860. The batteaux are Hudson Bay batteaux, they are called. They are very flat on the bottom and have flaring sides, and they are sharp at both ends, with
5089 a flare; both ends are sharp. They come rather high out of the water at each end so as to avoid taking water over the freight, wetting the freight, and it is also so that the man who poles—they pole these boats and use poles, a man in the bow, they have a seat right in the middle and he guides the bow and the man in the stern holds from his end of the boat also and he guides the stern; then in poling they have a line that they attach to the end of the thwart and they cordell up that bank of the river where it is swift. I used the cordell method in going upstream every trip. When there wasn't any wind, we used to cordell about three-fourths,
5090 well, may be four-fifths of the way. And when there was a good wind behind us, we would put a sail and carry it up. I think my batteau was about 22 feet long, about 20 or 22; I would not be sure. The breadth of it was about 5 feet. I would carry from two to three thousand pounds.

The freight consisted of merchandise, supplies that would be used in the mines, beans and coffee and groceries and food of all kinds. We carried nothing on our down trip.

As to how the size of my boat compared with the other boats, or batteaux that were in use there, will say there were a great many canoes used there, the Northern canoe, the Chinook canoe was used, and also the Queen Charlotte Islands canoe was used. As to whether there were batteaux of this general type of my boat that were smaller than mine, and others that were larger, will say my father built two boats in 1858 which were small. We run them until the winter of 1858 and 1859, then he built a boat
5091 that was fifty feet long and seven feet wide. We used her in sailing and cordelling. She drew about a foot of water when she was light, and loaded down to about two feet and a half. She would carry about between eight and ten tons. The 22-foot batteaux would draw about two feet when loaded. The fur trade route ran off to the south of us a little. It left at Fort Hope and crossed the mountains, following a stream called the Coquilla and went across the Cascade Range. They took the Samilkameen to go down into the strait. I went across that with my father in 1860. They didn't have any boats on the Samilkameen river, that is, a larger boat than her. I helped father build a sail-boat in 1860 and 1861, when we left Fort Hope and went
5092 across the mountains down the Samilkameen river, down to the Okanogen, the head of the Okanogen. There we built a boat 12 feet wide and 91 feet long that went by sails and a sweep when we took her down the river. My father took her down there. She went down the Okanogen river, we called it 60 miles to the Columbia, then 340 miles down the Columbia to the mouth of the Des Chutes river.

Taking this map of Washington; here you will find the Okanogen up here; there is the Osoyoos Lake, and that is where we built her, right in there. Three miles from the British Columbia line. That is Lake Osoyoos; then here is the Samilkameen; it don't show that, but we came across here and struck the head waters just be-low the south fork of the Samilkameen and followed it
5093 right down. We followed this line that has "Preston" on it and came down here and followed over here (indicating), and stayed there all winter. We just traced the line from Preston to the lake, then we followed the Okanogen

river, and here is where we came into the Columbia at the point of its junction at a town that is called Brewster now. We followed down the Columbia river, down through all these rapids. Here is the Wenatchee river.

I point to its connection at a little town called Wenatchee. Here is Rock Island; Rock Island is right there (indicating) Rock Island Rapids.

And we came down here, here is Cabinet Rapids, a bad rapid also at a certain stage of the water. We followed down the Columbia river across the Priest Rapids, and from Priest Rapids clear down following around until we struck the Oregon line and down as far as the Des Chutes river, and right here is where we landed at that time, at the Des Chutes river.

COUNSEL FOR COMPLAINANT. Mark it.

A. It is between the "R" and "E" in the word Oregon, away down to your left.

The COURT. Down the Columbia?

5094 A. No, down here, down at the bottom of the Oregon line.

COUNSEL FOR COMPLAINANT. On the Washington map, you see the label in the white portion for Oregon of a stream named the Des Chutes coming north?

A. That is where we landed. Now in 1862 the Oregon Steam Navigation Company built a railroad from The Dallas, the City of Dallas up here to the City of Celilo, just below Des Chutes; it became the Town of Celilo.

I have just drawn a line indicating it on the Oregon side, that is where it is. As to whether coming down from the Okanogen river I struck any rapids in the Okanogen, will say there is what they call McLaughlin's Falls, McLaughlin's canon there. McLaughlin's canon creek come out of

5095 there. Right close, just above the mouth of that canon creek there is a fall of about 6 feet, a perpendicular drop. We shot the falls. The Okanogen at that point is about 100 feet wide. This was a 91 foot boat and there were three men besides my father. We got on down below and came to the Colville reserve. There was no falls there; there is a

5096 rapids there. As to how much of a rapids there is, they have taken steamboats over there in the last four years; they have taken them up. A steamboat has been taken right from the mouth of the Okanogen up into the Osoyoos Lake. As to the name of that boat, I don't know; I forget it.

Being asked if when I came down, the old Hudson Bay fort, Okanogen, was still quite a trading post, will say it was still

there but it was abandoned. The Hudson Bay Company had retired after the Ashburton treaty. Had left, yes, sir.

As to whether there was anything there, any people there, will say there was stockade there, yes; the stockade was there.

Q. Well did you encounter the Downing Rapids?

A. I don't know anything about them; I don't remember that. I remember where Lake Chelan come down. There is a rapids there.

That is the one we now call the Downing Rapids. Being
5097 asked how much of a rapids that is will say, I suppose that is a five or six foot fall; there is a cliff on the right hand side coming down, an island below, and there is a shoal water runs over on the reef. You have to stick to the deep parts to get through. We shot that fall. That was the first time that I encountered the Rock Island Rapids. I have been through that fall since. Rock Island is a cliff that puts out on the left hand side, probably thirty
feet high, perpendicular, and there is a bay above it, and
5098 it is so that you cannot get lines around it to pull through. That Lone Rock is some distance below the rapids; it is about a mile below the rapids. The island divides the channel; it seems about equally dividing the channels. The rapids are named Rock Island from an island right in the middle; it is very abrupt and then there are high reefs of rocks running parallel with the current down below and about half way up the island there is what they call Hobbsville Point, about thirty feet high; it diverts the channel, so that you come around that point. It comes at more than a right angle the water coming around this way and you have to be very careful on those reefs below; you have to drop your boat right down close to this rock underneath so that it makes a very short bend and follow down around the island in that way. It is not possible to run, what we call, "run the rapids"; you must drop your boat down through, and in going up—
we gauge it for dropping, by working a wheel, reversing
5099 your stern; in coming up I had to put out four different lines. One line we had to pull her out, to work along, another breast line to hold her bow from swinging around when the current caught her, another at the stern to keep from going too fast and another at the stern to keep her from the rocks.

Q. And with all these things reversed, you could drop her down, you said?

A. No, I put out those lines going up. And in

going down I kept my boat in the clear and reversed her with the wheel, held her with the wheel. The speed of the current at that place is not over 6 miles an hour. The narrowest place is about—the shortest distance between rocks is about 80 feet, but by lengthening the current we make it more, that is, we drop the boat down and let her swing as I am holding her, and when we get ready to shoot in, we drive her into a place that way. That width is from the furthest projecting point out on one side to the further projecting point on the other. Those Rock Island Rapids occupy a reach of from one-half to three-fourths of a mile in the river.

5100 You get to the Cabinet Rapids shortly below there. The Cabinet Rapids is an island with gravel on it, a reef on one side and gravel on the other side of the island. In high water we come up around the island and have no trouble; in low water it is like going into a box, that is why they call it the Cabinet. You go right down in and the whole force of the current goes right into that, right into a trough or into a box, so that you have to hold the boat and let the current swing her around. All the current of the river goes down and strikes the cliff and dashes up sometimes six or eight or ten feet and runs along within forty feet of the shore; on the other side will be an eddy and you have to drop her down and have her go very close to the rocks or hold her up with the wheel and let her nose drop down by until you get her straight to make the turn holding her; it is impossible to run right straight down. The width of it in the part where you

5101 can run your boat from rock to rock is about 300 feet. That is, between projecting points on each side of the stream. But the current is only about forty feet wide and you have to stay in that forty feet wide because the eddy would catch us and drive us out of our course. This current forty feet wide makes a sharp turn dashing right against the cliff. When it makes the turn I don't think it is a right angle curve; it isn't quite, and just below the curve it goes all into whirls; there is no continuous channel below. That is "the eddy." We call it six miles from the head of Rock Island Rapids down to the foot of the Cabinet Rapids. The Dry Kiln Rapids don't amount to anything.

Q. Well still lower you come to the island rapids;

5102 there is another rapids some distance further down called the Island Rapids before you get to the Priest Rapids, but you say those don't amount to anything?

A. I don't remember them to amount to anything, because

I never paid much attention; we never had any name for them.

Q. Well, we will go down to the Priest Rapids; what sort of a rapid is that?

A. That sir, is—the river is filled from one side to the other, I think, from water's edge to water's edge is from 800 to 1,000 feet wide and between that there are quite a number of channels in between reefs. Where they go over that reef that extends—a succession of reefs extends clear cross the river, it is swift; between those places it is not very swift, but the reefs overlap; we go down through one reef and one place, then we have got to pull her across and drop her down in another place and go down that way, and just seem to veer across that way until we get down to the foot of the rapid where there is a great fall; it is almost—not exactly vertical, but it is a pour and when I was there, there was a rock but the Government had improved it; there was a rock in the middle which made a very heavy swell, but that can only be
5103 navigated in a medium or high stage of water. At the time we came down there the rock was still there but it has since been removed. I understand that the Priest Rapid is nine miles long; that it is what we considered it. At the lower rapid the current, in my estimation, is about 12 miles an hour. These reefs were the native rock in the bed of the stream, basaltic rock. They didn't seem to catch boulders as they washed down the stream; the boulders got mashed up to cobble stones before they got there. Our boat left Lake Osoyoos on the tenth of May and I don't remember the time we arrived at Des Chutes; probably—I couldn't tell you; I think it wasn't over twenty days. I made the journey upward
5104 from The Dalles, up to the lake again in 1888. I run the river that season with a steamer. I made one trip from Pasco to Okanogen up to Priest Rapids and the Rock Island Rapids, turned around and made four trips from Okanogen to Port Eaton, which is where the Chicago, Milwaukee & St. Paul Railroad now crosses the Columbia river.

The name of the town is Port Eaton; I don't think you will find it on the map. We called it that at the time; it is just a temporary name. It is just below Rock Island Rapids. I don't know whether you will find Johnston Canon there or not. They call it Ryansburg; it is right east of Crab Creek; you will find Crab Creek on the map there. Well, it is right on the other side of that; I ran from Okanogen down there, made four trips; then I

started up again and in getting over these Cabinet Rapids my engineer made a mistake and shot me into the current and broke the line and throwed a man down into the water and broke her nose right square off, and I had to haul her out and in hauling out I broke the capstan and turned around and went back and run down over Priest Rapids to Pasco, got a new capstan and came back again. Pasco
5105 is where the Snake puts into the Columbia. The steamer that I took through there in 1888 was 124 feet long, 22 feet beam, and had engines—

Q. What was the indicated horse power of the engines?

A. Ten inch cylinders, three foot stroke, very small power, 120 pounds of steam was all I carried, so that you can figure it out, I am not an engineer.

Q. How must water did she draw?

A. She drew about two feet.

Q. And what did she carry?

A. She carried,—the biggest load I had on her was about fifty tons.

Q. You spoke of the railroad coming in there; it is a general fact in the history of the country out there, Captain, that after they got those railroads all built they didn't use the rivers as much as they used to before they had any railroads, is it not?

A. Yes, sir, but they are running boats above this Rock Island.

Q. Now they are using boats again?

5106 A. They are still running them, have been ever since I took that boat up there. My freight was a miscellaneous cargo of supplies, groceries and supplies for use in the mines. I was carrying ore down at that time. Since then they have developed the wheat industry and are carrying thousands of tons of wheat every year. The Celilo Falls are 14 miles above the City of The Dalles, in the Columbia river. There are several islands in this stream, both above and below the Celilo Falls and in the river all the way. In high water there is no falls; there is quite a rapid but there is no falls. In low water there is a fall there of 37 feet; it is in the form of a horseshoe, falls around, the reefs come out of water on the right hand side and the reefs form a horseshoe and drop right into a channel right close to the Oregon side. That is, the cliff over which the river runs has washed back in the middle where the deeper water is and the greater amount of

friction on the rock. The whole river goes through
5107 there. Take the front of the horseshoe, where the deeper
passage is leaving out the two side places and it is prob-
5108 ably 300 feet wide. I never passed a boat around these
Celilo Falls. I have known it to be done. That has been done occasionally depending upon the condition of the water. The Dalles is six miles below the Celilo Falls. These Dalles are the places around which the Portage Railroad, that is
adapted for the carrying of freight from the boats be-
5109 low to the boats above, has been built. The "Dalles"
in the Columbia means a wall, walls where the water runs through. At low water in these Dalles steamboats have been taken through it but in high water I understand the Government survey makes it that the whole of the Columbia river runs through a place there 185 feet wide, and when there is a flow of water the current is not very strong through there because they have sounded down 300 feet and didn't get any bottom, but when the flood comes it chokes at this place, and one year we had a boat, had taken her down through over the Celilo Falls and the watchman kept an account of the raise in the water and there was a hundred and forty foot raise, which backed the water up and destroyed the fall at Celilo. You see it is a choke in the river. I had made trips up the Snake river itself from Pasco all the way up to Lewiston. I first made that trip—we left the mouth of the Snake river on
the 11th of September, 1861, and arrived at Lewiston,
5110 being 40 days going up the river. We call it 155 miles.
We didn't go quite four miles a day.

As to how much time it took in the down stream trip from Lewiston to Pasco, will say that coming down we were, I think, about four days, coming about forty miles a day. We didn't run at night either time. It wasn't safe to go at night. The Ainsworth Bar extends out from the Walla Walla county side of the river and extends up above the incline on the Ainsworth side until it gets right opposite the old south Ainsworth incline and then the bar extends right across the river, but
there is a depression in it that we go through; I run that
5111 for a good many years. The depth of water there is four
feet and a half. I saw it when the ice was froze to the bottom and I was stuck drawing three feet of water right in the ice. That was about the lowest that they had there.

I know Captain Powell of the United States Engineers. I was well acquainted with him.

Q. He speaks of it having a minimum depth of three feet.

A. Well, he got it sometime when they didn't strike the right sounding. I can show you a line of soundings where they will show ten feet on the government survey and I will show you a dry reef sticking out of water four feet.

Q. It depends somewhat on the time of the year when they take it and the condition of the water?

A. They take the sounding at high water, and then reduce. They will take a sounding when there is six feet of a
5112 raise. If they get nine feet, they will reduce it to three feet; that is the way they get a great many of their measurements. They don't sound in low water.

Perrin's Defeat is right at the head of Strawberry Island, and it is a narrow reef, extends almost across the river, and the channel is a little nearer the head of the island than it is over to the right hand shore, and it is a short break, deep water in the channel, but very narrow. It just comes through a little chute. The current is not so very swift; it is so deep water that you go up into it with speed and carry your weight right through; if you stop and go slow it will buck. The current will overcome your boat and it will come back. You have got to bottle the steam to make it. That is a common expres-
5113 sion among steamboat men. To bottle the steam is to choke her down a little and get all the steam up you can on the boiler, hold the trottle.

Q. Now, what amount of obstruction would that process enable you to overcome, Captain? Assume that you had a boat going normally in the method you have described, and being overcome by a current she lays back and bottles the steam and shoots through. Take a boat that with her ordinary power is equal to making head against the seven mile current, would you be able by bottling the steam to overcome an eight mile current?

A. Well, that is owing to the power your engines have got.

Q. Well, I say, take an engine which with her ordinary load under ordinary conditions could just make head against a seven mile current, could she by bottling the steam make the passage through a chute of that kind of eight miles an hour?

A. No, sir, because if her limit of speed is seven miles an hour, that is all you can drive her, but if you have got slack water below she will come up with that speed and then her momentum will carry her through an eight mile current, yes, sir.

5114 Q. That is what I meant.

A. Yes, her momentum. "Perrin's Defeat" is called that because he went up there with a steamboat and couldn't get through. He took the boat and was going to Lewiston in too low water and he struck the mouth of the Snake river and the first rapid he came to he quit. That was in 1864. They never defeated me there. That never was know as "Gray's Defeat."

Q. There isn't any other shoal or rapid known that
5115 way, is there?

A. They have got one place where they call my defeat. Well, I went up to a rapid above Lewiston once and broke my line, broke my capstan and had to back out.

The COURT. Q. Is that the time you told us about this morning?

A. No, this was one trip when I was making a commercial trip up, and they called it "Gray's Defeat." I broke everything I had. Asotin is just six miles above the mouth of the river. That was in 1904.

I know Five Mile Rapid. That is just five miles from
5116 the mouth of the Snake river, four miles from Pasco. It is so named because of the distance from the mouth of the river. It is a short, very rough looking, a very rough place. In low water the water pours through a low lying reef and meets a reef extending out from the righthand side coming down, also a dry reef on the lefthand side. Then as you get below there is a reef fair in the middle of the channel that sometimes goes dry and it throws the current at a direct almost a direct right angle, and it is a very short fall there, I think there is about eight feet in the fall in a length of about 300 feet. When it becomes dry we do not stop running. We dodge into these holes and take our spars out and shove ourselves around. Sparring through, we only use the spars to push us out into the channel. You cannot get speed enough to steer. You go up the river and you come to Fish Hook Rapids. I have often run the Fish Hook Rapids. At the
5117 lower end of the Fish Hook Rapids there is a reef in the middle of the river with a shoal bar probably two feet of water in the channel off to the left, in the deepest channel; you move off to the left and directly over to the right it goes around a point on the reef, and you follow up through the swift water and gradually draw out into the center. And from that for about a mile or a mile and a half it is one continuous succession of reefs and shoals first on one side and then on the other. They are all submerged, just

under the surface. But there is a channel there that by careful manipulation you handle a boat there. These submerged reefs break up the surface of the water into hillocks on the top of the stream and make waves. We call Fish Hook Rapids a mile and a half long. The fall there is in the lengths—we had one surveyor that made it 17 feet, and another that made it 14 feet, and another that made it 23 feet, so you can form your own opinion.

Q. Well, by and by you get to Long Crossing Rapids, you remember those of course?

5118 A. Yes, sir, that is a shoal. That is the shoalest place on Snake river. It has an island on the lefthand side and the bar makes off diagonally across the river until from the foot of the island to where it joins another part on the other side is all of a mile. The water is pouring or dropping over this bar and we have to run very carefully for a little bit of a sag in the bar. There is just one place where we can get through by manipulation. In the little sag it is about three feet deep, probably not in low water, there isn't over two feet. There is probably six inches more in this sag than in the rest of it. We can run right over it when the water is up two feet. Part of it is made up of gravel

5119 just about the size of your two fists. It is called the Cobble Stone Bar. The length of the swift water in this Long Crossing Rapids is only probably 200 feet long, but the bar that runs across is probably about a mile long. Those Rescue Island Rapids are a number of basalt reefs that stand around promiscuously and it is pretty hard to work through them. There is an island in the stream on the lefthand side going up, but there is very little water goes behind it, most of it is on the righthand side. This island, that is what they call the island which has very little water going behind it, that is a bed rock reef, basalt reef that extends out and deflects the water right to the center of the island, and there is another reef that stands right out, right perpendicular and the island crosses on one side over to the other shore, and the rapids are scattered around considerably. It is

5120 quite a dangerous place. That Rescue Island Rapids is between a quarter and a half of a mile long. It has derived the name from an accident. There was a ferry boat broke a wire line out at Palouse. The ferry turned over and the man that was running it got on top of it, out on the bottom of his boat and drifted down onto the island, and he had been there a day or two when a steamer came along and they

launched a small boat and went out and got him. It is a very rough place in high water.

It is not so far above that before you come to the Pine Tree Rapids. Pine Tree Rapids is very similar to Pasco, except you follow the islands. There are quite a number of islands and the water goes around the channel out onto it, and the government has blasted a channel through there which some of us follow now. When I went through it there had been no improvements. We went with the boat, the wid-

5121 est place we could find when we went through there with the sail boat was 11 feet, and our boat was 12 feet wide.

We had to get a line out ahead and twist her along and lift her up. We got a line on the other side and twisted her around and in that way we worked her up. The trouble was to get a line out on the reefs that were submerged. The channel was pretty straight along the island, but it has been improved by the government. In the early days in '65 when the Colonel Wright used to carry freight up from Wallula up to that island, that point there, and then there was a boat up above, and we would bring the freight above and then carry it across, make a portage of it and carry it across the island to the boat above.

Trans-ship it on the new boat. I don't exactly remember how much depth there was at Pine Tree Rapids but there is quite a fall. From the hole in the wall to the foot of the island it was about three-quarters of a mile.

Q. Now, you spoke of Palouse, there were two or three Palouses?

A. There is the false Palouse and the Palouse Rapids.

Q. Take the false Palouse?

5122 A. Narrow straight deep water, not very strong and you have to dodge a little, dodge the current a little to get through. Then you come to one called the skiff bar. I remember the Skiff Bar Rapids. All that requires is dodging the boulders.

Q. There is rather a crooked channel there?

A. You have to wind around and dodge the boulders, average about five or six feet of water there.

Q. Well, you get to the Palouse Rapids, how much of a rapid do you have there?

A. Well, in high water the reef extends across the river, and it makes a very rough, boating whirl and it twists the boat there considerably and makes that very difficult for steering. The channel is about 80 feet wide, it was 80 feet

wide and I had the Government engineer take off about 40 feet last fall and widen it so high in water it would not be so rough. The Monumental Rapids, that is below Palouse, and it is a bar that extends right out on one side to the reef on the other, and the bar, the wash of the gravel from above encroaches on the reef and it makes it very difficult and
5123 dangerous. By the twisting from the bar you are liable to knock—on the reef you are liable to knock a hole in the boat or go on the bar and get ashore and it is probably a thousand feet from the shore, out to this narrow channel. You have to steady your boat and it is quite swift in low water. I have run those rapids, I could not tell you, two or three hundred times I have been over—thirty times in a season, that is in the extreme low water, but during the season I used to make a trip a week there for years. In the extreme low water you have to put a line out and hitch it, pull yourself through with the line and the capstan. The Texas Rapids is a wild looking place but it is like some people, it ain't as dangerous as it looks. It is about a mile long. It is about a fifteen foot fall, I would judge that. In the head of the
5124 rapids the channel through there has reefs that divert the channel and twist it around considerably, and then afterwards it goes over what they call Roll Rock. Then there are reefs or a low ridge in the center of the channel, and from the center you go from one side to the other and the water is quite rough, but by careful steering a man gets down without any trouble. Running up stream it is very strong, I have had to do—what do you call it, double teaming, double leading over it. I have had to put out a part of the load and take it up then come back and take the other part of it over. It would take going up stream to run through those Texas Rapids just about half an hour from the foot to the head, about a mile.

Q. When you are making time up stream at the rate of between three and four miles an hour, you did not make this mile and a half or mile and a quarter, whichever it was?

A. Well, we was all day getting through the Texas Rapid, and the Pine Trees we was two days getting through.

Q. You mean it has now been improved to such a degree that you are able to make it in from half an hour to an hour?

A. Yes, sir.

Q. But in its native condition it took you a day to go through it and two days to go through the Pine Tree?

A. Yes.

5125 I remember Granite Point and the rapids there. Being asked how much of a rapid was there at Granite Point, will say it was not dangerous at all, there are several granite boulders that stand out close to the channel, and make a break. It is only dangerous in the night time. In low water those boulders there require close steering, that is all. The water breaks over the top of them. The water breaks over, they are right at the surface of the water, there is plenty of water in the channel. In making those trips from time to time you strike these places where the water breaks over them and makes waves and hillocks. There are places in low water where the boulders stick out through the water. You can see something like that at every one of these rapids where the boulders are present in low water.

5126 As to when the first trip was made up the Columbia, up from Celilo to Lewiston that I know of, will say we heard when we were living at the foot of Osoyoos Lake that a steamer had gone up the Snake river in 1860. This first trip up there was in '61. Captain Lem White, I know him well. He was the man that took the first boat up there. I remember his boat the Tonino. That is the boat.

With reference to Lewiston the Great Shoshone Falls must be 400 miles south. I have never been there. They are on the Snake river. The main channel of the Snake river comes up from the south to Lewiston and turns off to the northwest there. Away down somewhere on the line between Idaho and Utah are the Shoshone Falls.

5127 Q. You speak of a report of yours as being embodied in the United States Engineer's Report for 1884. I show you, Captain, United States Engineer's Report under the heading of Report of Captain Powell, Appendix Q. 4, Improvement of the Upper Columbia and Snake Rivers, Oregon and Washington Territory, Annual Report, Chief of Engineers, United States Army, Part III for 1884. Look at that and tell us whether this is the report?

This is the report beginning on page, the particular one I have directed your attention to beginning on page 2229 and you have now turned over to—

A. Have you the report for '85?

Q. I haven't it here. You mentioned '84 and I got the '84 report?

A. I made the examination in '84 and I saw the report in

there, I thought it was—I did not look particularly at the year, it was for the '84 year.

Q. It may be in the year '85 you think?

A. It may be '85.

Q. You don't find it here in the '84 report?

A. It may be in some of these—

Q. You see, here is the report of Philip C. Eastwick, Assistant Engineer, you point to a reference on page 2232.

A. This appears to be dated February 26, '84, and probably—I made my examination or reconnaisance in June and July, '84, it probably was not in there.

Q. The report to which I have called your attention
5128 begins on page 2229 and extends through to 2243. You spoke of being employed in '67 by the United States Engineer to survey a rapids in the Snake?

A. In the Columbia.

The engineer under whom I took employment at that time was Col. Williamson, Col. R. S. Williamson was in charge of the Pacific Coast as Chief Engineer and Lieutenant Heuer was in charge of the survey work, Lieutenant W. H. Heuer.

I spoke of a number of trips that I made on the Willamette river. I was running on the Willamette river in 1875; last, in the spring of '78.

As to what rapids I encountered on the Willamette river, will say there is the Clackamas Rapids, at Oregon City. That is the place where the old P. T. Company had built a dam across a slough in order to throw the water over a gravel bar and allow their boats to go up. This was on the left bank they built the dam. The channel off from the mouth of the Clackamas river filled up and they blowed out, blowed a hole in the dam on the left bank. We followed through close
5129 to the shore to the foot of the island and follow up, run up the tail race up to the dam and go through the dam that is broken. When the water is at low tide you have to put out a line up to the point of rock ahead and line through. Then after you get in that you are in a pool and you go around up past Oregon City and go into the Oregon City locks.

I was never up there before the locks were built there at Oregon City. I was up there in '64, hold on—I think it was '65 I was up there on a trip.

As to whether that was before there had been any improvement made on the Willamette, will say I don't know whether there had been any improvements, I was just on an excursion

and I didn't pay any attention to the improvements. There were no locks there that I recall.

Q. How much of a fall was there in those rapids you have mentioned?

COUNSEL FOR DEFENDANT. That is, if you know, if you observed them.

A. That one I went up first, I mean the one we ran up, my judgment would be about, there is about between three and four feet of a fall, in the length of the rapids, about half a mile. There is quite a shoal place over the bar until they broke a hole in the dam. After that there was plenty of water.

5130 Q. When you speak of the dam, you mean the natural dam formed there in the stream?

A. No, I mean the artificial dam, and when you get through there there isn't much water there, there is no water for steamboats, there is probably about two feet of water over the natural dam. But this artificial dam that they put in and took out again, left the hole in it, there is about 6 feet of water there.

Q. That had been put in with a view of narrowing up the stream, concentrating the water?

A. That has been done to throw all the water into this natural channel. They wanted to straighten it but they found they had to go around, it is a crooked channel.

Q. Yes, and a boat to make this trip, you made the trip both ways repeatedly before they blew out that dam?

A. I never made a trip before the dam was blowed up. I just made one trip up there with a boat. I did not know which way they went when the water was high, I paid no attention.

Q. That was a steamboat?

A. That was a steamboat.

Q. That was in '65?

A. '65, I believe.

Q. And when you were last on the river was during the period from '75?

A. Yes, sir.

Q. And at that time they had got the rock blown out?

A. Yes, sir.

5131 Q. But the steamboats had gone on through there during that period?

A. Yes, sir.

Q. You have spoken about going up into the Yamhill river and going to McMinnville?

A. The river was navigable just about two months in the year. Dayton is the low water head of navigation where they run, where the bar is formed by the emptying of the Yamhill, and for about two months in the year we run, or about one month of the year we run to McMinnville. I used to run from Portland every other day to Dayton in extreme low water, for several months. Then we ran as far as LaFayette.

5132 The mouth of the river, the mouth of the Yamhill river there was about three feet and a half of water, that is at times it falls off and is shallower and then they have got to dredge it, put a steamboat in there and dredge it with the wheel. The current of the Willamette running by the Yamhill would stop the sediment there. Then they would tie a steamboat in there a while and work her wheel and that wheel digs it out. Just by revolving the power wheel that would stir it up and the water would carry it off.

5133 Q. You spoke of going up into the Alaska and running on the Stirkine river? Describe that river to us, Captain?

A. Well, it is a river, the lower part is sand and drifts there, a great many, a great deal of trees and logs. In '77 I left Fort Wrangel on the 28th of April and ran to Glenora the first of May, following the ice up. As the ice melted and got out of the way we kept on going. It is 150 miles up there. As I said, the lower part of the river is shifting sand.

Q. How wide is the channel of the river down near the mouth?

A. The delta of the river is four or five miles but just the channel that we go through is probably about three feet wide. There are several islands formed all the way, and at one place up at what we call Hudson Bay Island, or Hudson Bay flats, the river is continually changing going up, never go up on the same channel. It is like a drift and a hole, the gravel and sand will lodge and then it will change channel and go around another way and you have got to pick your channel. Then you get up to the canon which is about 80 miles up; the river changes above, but there is not so much sand and it

5134 is more permanent. It has a rocky bottom when you get up and boulders, yes, plenty of them. Well, the shoalest stretch of water when you got up to the boulder on that run was about between four and five feet. I built two boats for that in the spring of '98, for a Klondike Mining Trading and Transportation Company. I went up in '77 first some twenty years before that. The boat I took up there on the first trip

in '77 was about 125 feet long and 24 feet beam. She drew about 22 inches light. She had a pair of 14-inch cylinders 4-foot stroke. I do not know the exact horse power.

5135 The Stikine river is continuous rapids. The Grand Rapids are up about 29 miles the other side of Glenora, the river takes a turn. Well, in coming down the river strikes a sandstone bluff and comes on down a little further about a quarter of a mile, following around the island bar—there has been a glacier off on the south side and it gradually, the wash from the glacier is gradually filling in. Well, that fills in and when the water, there is a hard boulder bar that it is hard to wash, don't wash, has formed an obstruction so that it throws the water right back under this moraine of the glacier and it turns quick to the left and then goes right in under the gravel and bank filled with sand and gravel and boulders. It makes a sharp turn into it and when it strikes that then turns it back to the right. It makes almost a Z with a sharp corner and you would try to drop your boat just as close to the bar as you can and let her hang on this bar until you pull her around across the bar so you can go down and go off, go over on the other bar and back that way. The current there is about

5136 twelve miles an hour. No boat ever went through without a line there. I think the Priest Rapids is a little the strongest, but it is the deepest and the water, we get more power than the Stikine, the deeper the water the more power it has got. The Stikine is shallow. Where that comes around the Z on the Stikine up at the upper corner it is probably eight or ten feet deep, then as we get down to the next corner with the water on the right, it goes over towards the island and it is gravel there about 3 feet deep, and from the point, over right in the corner it is probably six feet deep and right across then as it goes down right along the side of the perpendicular bank, perpendicular to the cut there the water is ten or twelve feet deep. That is the Grand Rapids of the Stikine. There are quite a number of shoals up above there, you have to wind around through it to go up the channel. Then you make several very short turns. You go over next to the right hand bank and then follow around until you are

5137 finally at the left hand bank and work between the islands. After you get through the sand, it gets lower down to the gravel, and you have to follow along very close to the growing trees. The trees almost overhang and you have to look out for them or they will take off your upper works. You have got to handle her very carefully for the

shoal water or the boat will run, what we call run, and then just as you get up to the head it is very shoal. If she turns off she will run ashore, cannot turn around. It ain't wide enough to turn around, she would go ashore. I have done that two or three times myself, get over there and the water would catch her and throw her onto the bank. Then you have got to spar and work off the little shoals, if you are shoal aft more than it is forward, you have got to line out and pull her off into the current. This Grand Rapids Shoal above
5138 there, makes a ridge in the river from below the foot of Grand Rapids to above the island shoals, probably four miles. I don't think it falls as much as the Priest Rapids, but much more than the Palouse. In '77 my boat was carrying supplies to the miners, carrying mules and animals up in there to the Cascera mines. They were mining gold there in '77 and had been mining for several years.

That does not go clear up to White Horse; that is a
5139 different river. I have taken a boat up to White Horse on the Yukon.

Being asked what is the condition of the Yukon up there at White Horse, will say as to the Yukon it is considered,—they call it now the head waters of the Yukon at White Horse, but up there they call it Fifty Mile river. It empties in about 30 miles below White Horse, empties into Lake La Barge and Lake La Barge empties into Thirty Mile river and the Thirty Mile river empties into the Hootalinqua and the Hootalinqua joins the Pellee at Selkirk and makes the Yukon. Take the Fifty Mile river where it goes into the lake, the width of the Fifty Mile river near its mouth is probably 200 feet or 250. The width of the channel in which the boats run where the water is deep enough for a boat is probably all the way from 150 to the full width of the channel, the full width of the river. At the mouth after you get into the river there is not less than six feet, except in one place, and after you get out into the lake then it shoals out and is there shoal and in low water
5140 in the lake there is about two feet and a half of water.

The lake was really only a broadening of the river. The lake is 30 miles long and about three or four miles wide. It comes down through and out into the Fifty Mile river below. The boats we built did not go up there, they were built in Victoria—Westminster and finished in Vancouver on the Stikine river. They were going to take freight, they were trying to establish an all Canadian route from Fort Wrangle to

Glenora or Telegraph Creek and then up by Teslin Lake and through the Hootalinqua river and in that way get into the Yukon country at Dawson. They were for use in connection with supplying the mines. I came to the White Horse Rapids in October, '99. I stayed there just long enough to get aboard of train.

5141 Being asked what has been my experience as a real estate man, will say I have made a whole lot of money at it and I spent it as fast as I got it. I first went into the real estate business, when I first bought—the first foot I ever owned in my life was when I went to establish a transfer of the Northern Pacific across the Columbia river at Pasco. I had to buy a piece of land to live on, and after I got a little piece I wanted more, and I kept on buying more and one time I owned several thousand acres. I still own a few pieces. There was a period when I left the business of steamboating and followed the business of real estate.

5142 When I was in the employ of the Northern Pacific I was looking out for their steamboat interests and I was carrying on a real estate business for myself and acting as local agent for the Northern Pacific Land Company, that was from about '87 to '92. I was captain of a steamboat at the same time, and doing real estate business for myself and for the company and was county commissioner and I don't know what all. I was actually operating, I was captain of a transfer boat which was carrying cars across the river, a ferry boat across the river. It was not necessary for me to be

5143 on the boat. I was looking after the boat and this was outside, incidental; although I was here in '92, I was in Chicago and I was in Cincinnati a couple of months. I came here in July, '92, and left here on the 27th of December, '92, and went home. I was sick in '93 in the hospital for three months and a half. In '94 there was an immense flood up in the Columbia river and I took charge of running the steamer for the Northern Pacific Railroad Company from Ainsworth to Wallula to connect the two roads which was washed out, for about six weeks. And I was around home there a good deal of the time. Then in '95, I of course like everybody else, I went broke in '93, and in '95 I had to go to work. I commenced going round, I think it was in '95, it was in '95 I brought the steamer Norma down through the Snake river canon. That is between Huntington and Lewiston. Hunting-

ton is at the end of where the Oregon Short Line and the
5144 O. R. & N. join. That is up above on the Snake river to the south. We went up 250 miles. The canon is between Huntington and Lewiston. The canon proper is about four miles long.

Q. You say you made that trip in 1895?

A. Yes, sir, I believe that was the year.

Q. What was the boat?

A. Steamer Norma. I went over the rapids or Cascades, Copper Creek Falls was the worst. Copper Creek Falls is a perpendicular fall of about 18 feet and at about 200 feet or 250 feet below the fall where it pitches over there is a cliff about 150 feet high standing right at right angles with
5145 the current. The current has gone through there and the drift has disintegrated the rock until a part of the current runs under the cliff. As you pitch over this cliff it seems as though the boat were going to smash her brains out. You get a lot of water pouring off, there is a big river, and you go off there about 18 feet fall there, of course the supporting water will hold it up at an angle probably—ten degrees, probably, ten degrees is pretty heavy. Anyhow the water runs very fast.

Q. Do you know where the place is they call the Seventy Mile Canon, or don't you remember that?

A. I don't know. There was no one aboard who had
5146 ever seen the river before, we did not know where we were going. We found quite a number all the way from 10 to 15 foot falls, all the way down. There are a few miles at one place where the river had to go through a clay bank with granite boulders. They had fallen in until the granite boulders were laying just as steep as they could lay and the water was going down there, and I assumed there was about 200 feet of fall in about four miles. It looked like going down a chalk line, it was perfectly white. I stood in the pilot house and I could not see the water on either side. It was perfectly straight, I could see the water ahead but I could not see the water on either side of the pilot house. I sup-
5147 pose the water there was about 70 or 80 feet wide. I saw just the banks, fallen in, the rocks, the granite boulders that were lying there all the way, from the size of your head to 6 feet in diameter. That was located below the Copper Ledge Falls and 60 miles above Salmon river. We kept on encountering rapids. Finally we got to the mouth of the Imhaha, the Imhaha river where the Eureka and Fargo mines

are located now. There we found very difficult rapids. It poured through, these granite boulders had fallen in and there was—a reef comes this way on this side (indicating) and there is a basalt reef and granite boulders on that (indicating) at right angles to the bank of the river. And then at a
5148 point shifting out there, they had been shoved out there by a water spout and washed down and forced it right in there so that it makes that part circular rapids. The boulders project out into the stream out of the water, perhaps there is 100 feet to spare, but it is very crooked there and quite dangerous. When you get a little further you come to Sheep Rock, there is where the steamer Imhaha was wrecked. The captain was going through and had out a line there and pulled her through, but they were a little careless, or his men were careless in throwing the line overboard and it caught on the wheel and she turned down and ran on one side, one end on one side and the other on the other, right across the river. They jumped ashore as soon as they could and
5149 she just backed right off and upset a little way below. The Sheep Rock projects some out into the stream at that point making rather a narrow stone cliff there. The Priest Rapids is stronger than that, it (Sheep Rock Rapids) is a little bit stronger than Palouse. It has got a cliff there at the side like the Priest Rapids, about four or three miles below it goes into the Salmon river. Where the Salmon river comes in it is more or less broader. Then the water throws out on the right side and there is a bar there probably
5150 60 or 70 acres. After it passes there its speed is about 7 or 8 miles an hour. I think it is fifty miles from the mouth of the Salmon river to Lewiston. For the fifty miles down stream it takes about two hours or two hours and ten minutes to run the distance. To go up stream it takes about 8 hours. I have gone up the Salmon river to the mouth of the Imhaha. That is as far as they ever have been. In '64 I was on a boat that was sent up there by the O. T. N. Company and tried to get through this Snake river canon and we got up about 25 miles above Salmon river and struck one of the bars that went across the river and knocked 14
5151 feet of her bow off and we turned around and came back. 1904 I believe it was when I quit the railroad, quit the company and went onto the Snake river, and was running up until December, 1906.

Q. And in '73 or '4 when everybody went broke all through the country you went into the butcher business?

A. Oh, no.
Q. Wasn't that the time?
A. '93 when they all went broke, I didn't go into the butcher business then.
Q. When was it you took up the butcher business?
A. That was in '83 and '4.
Q. That is what I say, in '73 and '4 was when some of us think was the worst panic we ever had?
A. We didn't know anything about it that far out
5152 west. I ran up Clear Water in 1863. It joins the Snake at Lewiston, Idaho, comes in from the north, no the east, comes in from the east. I went up it about twelve miles to the Lapway Agency?
Q. Have you been there since?
A. Not on the river.
Q. There is a railroad through there now is there not?
A. Yes, sir.
Q. That is quite a common experience out there where the railroad parallels the river, isn't it?
A. Yes, sir. They tried, there was a boat running on there a few years ago, tried to bring wheat down but they made a failure of it.
Q. Your idea would be then, Captain, that a river should be navigable if it was the only way to go, but not navigable if there was a better and cheaper way for a railroad along side of it?
A. It is possible to take some boats where it is not—would not be practicable.
Q. Meaning by that now it would not pay?
A. Where it won't pay.
Q. Yes, and you mean to be understood in that sense when you speak of streams being practically navigable or practically not navigable?
A. Yes.
5153 Q. And then its character would vary in that respect with the development of the country?
A. Yes, sir.
Q. And the other means of transportation, is that right?
A. Yes.
There are quite a number of swift water rapids on the Columbia between Pasco and Celilo. Squally Hook Rapids is pretty swift and it is difficult. You have to go between quite a number of bars and rapids to get up into the main rapid. The main rapids is straight and they are very strong and swift.

It is from the head to the foot probably three-quarters of a mile. In that distance the river falls, I should judge it was about ten feet, or an eight foot fall there, eight or ten. I have run that fall probably two or three thousand times. I know
the Umatilla Rapids, upper and lower. They are just
5154 about at the town of Umatilla, on the Columbia river,
between Pasco and Celilo. In the whole distance of two and a half miles there is a fall there at the upper Umatilla of 17 feet. We measured it at the time I was making the soundings and surveys. I have run both ways. I have run up in high water and in low water both ways. I took through there a flat bottom light draught stern wheel steamboat. The last boat I was running there drew 29 inches light. The boats, the average boat for the Columbia river draws about 30 inches light, when loaded with a load she would draw from 4-1/2 to 6 feet, and even brought down as much as 7 feet. I assisted in the survey for the purpose of improving the channel there
at the Umatilla Rapids.
5155 That is where I said there was a current of twelve
miles an hour.

As I understand, they have got out there, they show a current running at the gravel bar which is called the Lower Riffle, at nine miles an hour. The Yukon river from the mouth to the ramparts which is 800 miles up, is one continual mass of sand and down at the lower end it is pondry; that is a kind of mossy growth that grows in bunches right out into the stream. It grows right out in the islands, innumerable islands of ice. And the channels are, if a man knows his business—they are shifting considerably. After you get to the ramparts, then you have about 100 miles of rock, where its channel is defined and remains there the same. Dawson is about 800 miles down it is half way, the ramparts are. Then after you get above Fort Hamlin, which is about 50 or 60 miles above Ramparts, at Ramparts it commences to spread out again and it is full of innumerable islands, and the channels are very narrow and crooked and it divides and going through you would have to
follow in one channel where it runs off by the island, and
5156 you have got to run the channel that you can find there,
It would be, places in extreme high water would be from 4 to 5 feet deep. In low water the same, because it goes out, the high water brings the gravel down and fills it up just as the river bed rises. I understand that the river at the widest part of the Yukon flats is 45 miles from water to water on one side, and that is not—all filled in between with a heavy

growth of cotton wood and even fir and tamarac growing there, and all those innumerable channels go through there, so that is the only place that I hired a pilot when I went through because I did not think it would pay to waste time hunting for the channel. He got me into trouble at one place. The narrowest channel, some places that would not be over 75 or 100 feet wide and four to six feet deep. When you get up to a little place called Fourth of July creek you have got a pretty fair channel, it is reasonably permanent. The bed of it, the bed of the channel is of hard rocks and you have
5157 no trouble at all in finding the channel there. It is lined with glaciers going down on both sides of the river and there are moraines running in on both sides above the river on the bank all the pay up, and all the way we saw boulders sticking up out of the water, and had to work your way around between them. From Dawson up to White Horse it is continually the same, although there are a few places where, as at steamboat bar,—they have quite a number of islands that you have to go through. These islands are made very largely of glacier clay, cementing the boulders in place. They are made by the ice and they have crowded up there and you can go back and come up there in the summer time where
5158 the water has washed out and you can see the ice with trees growing on top of them.

That is what we call historically fossil ice; ice that has fossilized that is a great many years old. That goes up near Skagway. No, White Horse is the name of a rapids. It derives its name from the fact that it comes galloping like a white horse there. There are boulders and reefs in the stream. The stream is lashed into ferment all the way down. There was a boat on Lake Marsh, which crosses over to Caribou, where there have been boats running. As to
5159 whether the boats were actually run on the rapids coming down, will say no steamboats were run or can run up there through the White Horse. There have been several taken down, several steamers, small ones. One was the Nora, was about 80 feet long and 10 feet beam, and the Willie Irwin, about the same thing, and there was one other boat that was about 100 feet long, I forget her name. There have been I think four boats taken down over the rapids. They drew
5160 about two feet. The 80 foot boat carried about 400 ton up stream, she had about a 4 foot draught. The 100 foot boat drew about the same amount. The White Horse Rapids proper are about a mile long.

I have never been on the Pellee. I have heard a boat went up there 60 miles, but how much farther she could have gone I do not know. I used this process of cordelling in the
5161 days of my early batteau experience. In a batteau, we took the line in a batteau right up to the bank and the men jumped out and go along that way and line up around those swift waters. And in warping, why you would take the skiff alongside and put your rope in it and carry the rope up above and then run the end back to the big boat and put it on the capstan and wind up there. And sometimes if the bank is good they just jump out and run alongside the bank with the line, pass the line up on the bank and make it fast and shove her out and wind her up. That is the practice in common use on the Snake and Clearwater and everywhere in the swift water streams, and it is still in common use on the Snake. Wherever a steamboat can go they put out a line, and then they handle it with the capstan. On the rapids above Lewis-
ton there never has been a boat went up through there
5162 that was run without a line. Those boats that run on the Snake on their own power is still water when carrying the ordinary load of freight are about 12 mile boats. Coming down the stream sometimes on the Snake river we would go more than twice that fast. Well, I have considered that sometimes I went 35 miles an hour, but I wouldn't swear to it.

I arrived in Chicago on this occasion Saturday night at
10:05 and went down to the Desplaines river yesterday;
5163 on Sunday. There was with me Mr. Logan, Mr. Munroe and Mr. Norton. We left Chicago Sunday afternoon and went down with this party between two and three o'clock. We got back here about half past eight, I think it was; somewhere close to that. I didn't look at my watch. We come back by rail from Joliet and went by rail to Joliet. We used an automobile from there, made the trip from Joliet down to the site of this proposed dam and back again. I sup-
5164 pose I came on here for the purpose of giving testimony in this case. I didn't know what I was coming for until I got here. I received a message requesting me to come on, and I came in pursuance of that message; that came from the counsel for the defense.

Re-direct Examination.

Q. And you have traveled all over these rivers with Mr. Starr and noted their difficulty, and having that in mind, are you still of the opinion that the Desplaines river is not safely navigable for boats?

A. Yes, sir.

Q. You were asked whether you referred to navigability as compared to the use of railroads, when you said the Desplaines river was not in your opinion navigable. Did you mean that its navigation would not be commercially practicable in competition with railroads, or that it was not a navigable stream?

Objected to as not proper re-direct; overruled.

5165 A. It is most certainly not practicable in competition with railroads, and I don't think it would be practicable in competition with wagons.

COUNSEL FOR DEFENSE. Q. Having had your mind refreshed with all the difficulties that you have gone over, it is still your opinion that you could not safely take boats up and down?

A. Yes, sir, that is my opinion.

At Squally Hook in extreme low water in the rapids there is a depth of eight and ten feet. In the rapids proper there is a rock, right in the head, where the water is eight or ten

5166 feet deep, but at the lower end where it turns off, there is only about four feet of water. The character of the bed there is broken rock and gravel. Well, it is boulders.

Q. Now, the upper Umatilla, what is the depth on the rapids there?

A. There is no place that you come over, except over a rock, except it has been blown out of the channel, where it is less than five feet at low water, but it is very crooked and an innumerable number of those channels that are much shal-

5167 lower than the one that we followed. The one we followed at the extreme low water in our navigation had about five feet of water. The Yukon channel was probable 300 feet wide and about 5 feet deep, clear of boulders in the channel.

The White Horse Rapids are between 400 and 500 feet in width. It is not shallow. When I speak of depth I mean depth in the clear. The channel in the Stikine at the place where the trees come over, from bank to bank, is about 400

feet, but the channel probably where the boats could run,
5168 is not over 75 feet. Its depth was about 3¼ feet and its bed was small gravel. At Five Mile Rapids there was a dry reef. There is no place in the channel proper where there is less than eight feet. At Fish Hook Rapids there was 2 feet of water on the left and the deepest water was on the right, about 5½ to 6 feet. The Long Crossing Rapids was the shoalest place in the Snake river and the depth of channel there at lowest depth was thirty inches.

5169 Q. And three feet at the channel?

A. Two feet and a half at dead low water.

Q. Yes. Now, the Rescue Island you said was basalt reef. What were the depths at the Rescue Island Rapid?

A. The reefs at low water protrude from the surface, but by going above, see-sawing down and going up and see-sawing down again, we got through the channel, and there was probably six or eight feet of water. At False Palouse I never saw less than eight feet of water.

Q. At Palouse Rapids itself, what is the depth of the water?

A. Unknown.

Q. Very deep?

A. Very deep. In very low water at the upper end of Palouse the boulders extend almost across, making the channel very swift, and they are only about five feet under water.

Q. Five feet under water?

A. Yes.

Q. That is at lowest navigable water?

A. That is at lowest navigable stream.

Q. What is the depth at Monumental Rapids under similar conditions?

A. About 30 inches, two feet and a half.

Q. That is clear of boulders?

A. Clear of gravel.

Q. At the Texas Rapids, what is the depth of low water?

5170 A. Texas Rapids, there is quite a depth there, near the head. We have to go over rocks that are about five feet under water.

Q. Now, Priest Rapids, what is the effect of high and medium stages of water upon Priest's Rapids?

A. It raises the water over a dry channel. It fills a dry channel on the Douglass County side and allows steamboats to pass up, around a canal, which is very swift and turbulent.

Q. What depth of water do you have then?

A. About five feet. I went down it and up it in a medium stage of water. It is navigable but it is only navigable at medium and high stage. At low water it pours right into a sluice which is probably a hundred feet wide and the whole of the river goes right through that one sluice, so I couldn't tell about the slope; it is impossible for a boat to climb.

5171 At the Cabinet Rapids there was more than ten feet of water. At Rock Island Rapids there is not an extreme amount of current there, and at the narrowest point I think the water was about 8 feet when I went through. But the water gets low, the channel that a steamboat has to go through becomes almost dry and the rocks stick out of the water. The water percolates through between innumerable channels that are not wide enough for a steamboat to go through.

Q. How do you get the steamboat through?

A. You don't get through there in low water. I

5172 wasn't at the Chelan Rapids at extreme low water; when I was there, there was about 8 feet of water.

Q. And on that trip you passed over the rapids near McLaughlin's Falls; what was the depth of the water there?

A. That I couldn't say; we figured that there was about three feet and a half of water.

Q. How much?

A. About three and a half feet.

Q. Hills' Bar, you said the river was 600 feet wide, fifty or sixty feet between rocks, a channel of 50 or 60 feet; that was the depth of the river at Hills' Bar?

A. I was very young at that time and I don't remember.

Q. Have you any distinct recollection as to the character of that bar at all?

A. I recollect having seen the rocks breaking in all directions and that we followed a certain channel. How deep it was, I don't know.

Q. You spoke of going in the "Norma." Now, turning to the Snake river, what year was it you went down with

5173 the Norma from Huntington to Lewiston?

A. I believe it was in 1885.

Q. Prior to that time the Government had done work on it, hadn't it, between those points?

A. Yes, sir; between Huntington and Seven Devils.

Q. Let me read this to you: I am reading from page 3532 of Part 5, Report of Engineers for 1901.

COUNSEL FOR COMPLAINANT. I submit that is not proper re-direct.

The COURT. Yes, you brought out about Huntington and that section, and he didn't in his.

COUNSEL FOR COMPLAINANT. Well, what I mean is, is as to the use of extraneous documents as a method of elaborating the testimony of the witness, is, I submit, not proper re-direct.

The COURT. I think it is proper under the circumstances. He may call his attention to Government Reports.

COUNSEL FOR DEFENDANT (reading):

"In 1892, $20,000 and in 1894 $25,000 were, as before referred to, appropriated for the improvement of the Snake from Huntington bridge down to the Seven Devils mining district. Considerable work was done in freeing the river from obstructions in this locality; considerable plant was collected, including drills, scows, tools, etc., and the work or removing ledge rock and boulders was carried on for several seasons. Only one steamer, the Norma, was ever built for navigating this section of the river, and she made but one trip and then the owners abandoned the idea of running. In 1896 all the Govern-
5174 ment plant in this portion of the river was sold and the river improvement abandoned."

Q. That is the trip that you made, is it not, Captain?

A. Yes, sir, I brought the Norma down.

Q. And that is a correct statement, that is the only trip you ever made?

A. No, she made a trip down to Seven Devils and back.

The COURT. That is, from Huntington to Seven Devils?

A. I went from Huntington to Seven Devils and back to Huntington, and then she laid there until the next year and then I took her down.

Q. To Lewiston?

A. To Lewiston, yes, sir.

COUNSEL FOR DEFENDANT. That was the complete history of her experience on that part of the river?

A. Yes, sir.

Re-cross Examination.

5175 They are making some progress with the development of the canal all the way around The Dalles, but the canal is not yet completed. It will be a number of years to come before that enterprise can be completed. But there is navigation below it and navigation above it.

Q. You have a place there in the Columbia river where there are boats below and boats above, but the natural barrier at The Dalles is great that there isn't any navigation through The Dalles themselves.

A. Yes, sir.

Q. Is there any place like that, that you think of now on the Snake where there is navigation above it and navigation below it, but not through it?

A. No, sir; there is no such place as that. It is
5176 possible to take a steamboat through the Snake river canon, but there are no boats above since the Norma was brought down; I don't know but what there may be one. The Okanogon Lake is being navigated in British Columbia. The Okanogon river is being repaired by the Government so that boats can be taken up there from the Columbia river. They expect to run there about three months in the year.

5177 Q. Reading from this same report from which counsel read to you, a statement on the same page,

"The Upper Columbia and Snake rivers having formed one of the most important highways of travel in the region in early days before the railroads were completed, Congress as early as 1872 made appropriations for the improvement of the Columbia, and in 1876 the Snake was added to the plan of improvement."

Do you accept the statement as correct that the Upper Columbia and Snake rivers formed one of the most important highways of travel in the region in the early days before the railroads were completed?

5178 The WITNESS. What is the question?

COUNSEL FOR COMPLAINANT. I simply put the question to you if they did constitute the main highways of travel before the railways?

A. They most certainly did, yes, sir.

Q. Now that the railways have been developed on each side of it, the rivers do not constitute the main highway of travel?

A. They do not, but we are making every effort to make them so.

Q. You are trying to hold on to them all that you can?

A. Yes, sir, trying to develop them. Our State appropriated $125,000 for the improvement of the Snake last year.

5179 *Re-re-direct Examination.*

Q. Assuming, Captain, the Columbia and Snake constituted the most important highways of travel in early days, it was true, was it not, in that new country where you were brought up that every stream that was capable of navigation at all, some way was found to navigate it?

A. Yes, sir.

Q. Did you ever know a stream that was capable of being navigated that was not navigated?

A. I never did.

5180 In connection with the cross-examination of Captain Gray, maps of Oregon and Washington, which were used in his testimony (marked June 16 Exhibit 1, Oregon, and 2 Washington), were admitted in evidence. (Appendix, p. .....)

OTHER DATA.

3502 COUNSEL FOR DEFENDANT. I will read something from Parkman, which I wish to introduce. I read from pages 406 to 408 from Parkman's La Salle and the Discovery of the Great West, being the summary of Parkman as to the character of La Salle:

"Thus in the vigor of his manhood at the age of forty-three, died Robert Cavalier de la Salle, without question one of the most remarkable explorers whose names live in history. His faithful officer Joutel thus sketches his portrait: 'His firmness, his courage, his great knowledge of the arts and sciences, which made him equal to every undertaking, and his untiring energy, which enabled him to surmount every obstacle, would have won at last a glorious success for this grand enterprise, had not all his fine qualities been counterbalanced by a hautiness of manner which often made him insupportable, and by a harshness toward those under his command which drew upon him an implacable hatred, and was at least the cause of his death.'"

This is the end of the quotation from Joutel.

3503 "The enthusiasm of the disinterested and chivalrous Champlain was not the enthusiasm of La Salle; nor had he any part in the self-devoted zeal of the early Jesuit explorers. He belonged not to the age of the knight-errant and the saint, but to the modern world of prac-

tical study and practical action. He was the hero not of a principle nor of a faith, but simply of a fixed idea and a determined purpose. As often happens with concentrated and energetic natures, his purpose was to him a passion and an inspiration; and he clung to it with a certain fanaticism of devotion. It was the offspring of an ambition vast and comprehensive, yet acting in the interest both of France and civilization.

Serious in all things, incapable of the lighter pleasures, incapable of repose, finding no joy but in the pursuit of great designs, too shy for society and too reserved for popularity, often unsympathetic and always seeming so, smothering emotions which he could not utter, schooled to universal distrust, stern to his followers and pitiless to himself, bearing the brunt of every hardship and every danger, demanding of others an equal constancy jointed to an implicit deference, heeding no counsel but his own, attempting the impossible and grasping at what was too vast to hold,—he contained in his own complex and painful nature the chief springs of his triumphs, his failures and his death.

3504 It is easy to reckon up his defects, but it is not easy to hide from sight the Roman virtues that redeemed them. Beset by a throng of enemies, he stands, like the King or Israel, head and shoulders above them all. He was a tower of adamant, against whose impregnable front hardship and danger, the rage of man and of the elements, the southern sun, the northern blast, fatigue, famine, disease, delay, disappointment and deferred hope empty their quivers in vain. That very pride which, Coriolanus-like, declared itself most sternly in the thickest press of foes, has in it something to challenge admiration. Never, under the impenetrable mail of paladin or crusader, beat a heart of more intrepid mettle than with in the stoic panoply that armed the breast of LaSalle. To estimate aright the marvels of his patient fortitude, one must follow on his track through the vast scene of his interminable journeyings,—those thousands of weary miles of forest, marsh and river, where, again and again, in the bitterness of baffled striving, the untiring pilgrim pushing onward towards the goal which he was never to attain. America owes him an enduring memory; for in this masculine figure she sees the pioneer who guided her to the possession of her richest heritage."

I also introduce page 276:

3050 "Chapter XX, 1681-1682. Success of LaSalle. His followers—The Chicago Portage—Descent of the Mississippi—The Lost Hunter—The Arkansas—The Taensas—The Natchez—Hostility—The Mouth of the Mississippi—Louis XIV. Proclaimed Sovereign of the Great West."

That is the chapter head on page 275. I begin reading at the bottom of page 276, the page heading being 1682:

"On the 21st of December, Tonty and Membre set out from Fort Miami with some of the party in six canoes, and crossed to the little river Chicago. LaSalle, with the rest of the men, joined them a few days later. It was the dead of winter, and the streams were frozen. They made sledges, placed on them the canoes, the baggage, and a disabled Frenchman; crossed from the Chicago to the northern branch of the Illinois, and filed in a long procession down its frozen course. They reached the site of the great Illinois village, found it tenantless, and continued their journey, still dragging the canoes till at length they reached open water below Lake Peoria."

3506 Again, in Chapter 21, beginning on page 289, the chapter heading being "Chapter 21, 1682-1683. St. Louis of the Illinois. Reading from page 209, the heading at the top of the page being "1683":

"Again on the fourth of June following, he writes to La Barre, from the Chicago portage, complaining that some of his colonists, going to Montreal for necessary supplies, have been detained by his enemies, and begging that they may be allowed to return, that his enterprise may not be ruined."

Also, on page 21, as follows:

3508 "After leaving the priests, LaSalle went to Onondaga, where we are left to infer that he succeeded better in getting a guide than he had before done among the Senecas. Thence he made his way to a point six or seven leagues distant from Lake Erie, where he reached a branch of the Ohio, and, descending it, followed the river as far as the rapids at Louisville,—or, as has been maintained, beyond its confluence with the Mississippi. His men now refused to go farther, and abandoned him, escaping to the English and the Dutch; whereupon he

retraced his steps alone. This must have been in the winter of 1669-1670, or in the following spring; unless there is an error of date in the statement of Nicolas Perrot, the famous voyageur, who says that he met him in the summer of 1670, hunting on the Ottawa with a party of Iroquois.

3509 But how was LaSalle employed in the following year? The same memoir has its solution to the problem. By this it appears that the indefatigable explorer embarked on Lake Erie, ascended the Detroit to Lake Huron, coasted the unknown shores of Michigan, passed the Straits of Michilimackinac, and, leaving Green Bay behind him, entered what is described as an incomparably larger bay, but which was evidently the southern portion of Lake Michigan. Thence he crossed to a river flowing westward,—evidently the Illinois,—and followed it until it was joined by another river flowing from the northwest to the southeast. By this, the Mississippi only can be meant; and he is reported to have said that he descended it to the thirty-sixth degree of latitude; where he stopped, assured that it discharged itself not into the gulf of California, but into the Gulf of Mexico, and resolved to follow it thither at a future day, when better provided with men and supplies.

3510 The first of these statements,—that relating to the Ohio,—confused, vague, and in great part incorrect, as it certainly is, is nevertheless well sustained as regards one essential point. LaSalle himself, in a memorial addressed to Count Frontenac in 1677, affirms that he discovered the Ohio, and descended it as far as to a fall which obstructed it.

Again, his rival, Louis Joliet, whose testimony on this point cannot be suspected, made two maps of the region of the Mississippi and the Great Lakes. The Ohio is laid down on both of them, with an inscription to the effect that it has been explored by LaSalle. That he discovered the Ohio may then be regarded as established. That he descended it to the Mississippi, he himself does not pretend; nor is there reason to believe that he did so.

3511 With regard to his alleged voyage down the Illinois, the case is different. Here, he is reported to have made a statement which admits but one interpretation, —that of the discovery by him of the Mississippi prior

to its discovery by Joliet and Marquette. The statement is attributed to a man not prone to vaunt his own exploits, who never proclaimed them in print, and whose testimony, even in his own case, must therefore have weight. But it comes to us through the medium of a person strongly biased in favor of La Salle and against Marquette and the Jesuits.

Seven years had passed since the alleged discovery, and La Salle had not before laid claim to it; although it was a matter of notoriety that during five years it had been claimed by Joliet, and that his claim was generally admitted. The correspondence of the governor and the intendant is silent as to La Salle's having penetrated to the Mississippi, though the attempt was made under the auspices of the latter, and his own letters declare; while both had the discovery of the great river earnestly at heart. The governor, Frontenac, La Salle's ardent supporter and ally, believed in 1672, as his letters show, that the Mississippi flowed into the Gulf of California; and two years later, he announces to the minister Colbert its discovery by Joliet. After La Salle's death, his brother, his nephew, and his niece addressed a memorial to the king, petitioning for certain grants in consideration of the discoveries of their relative, which they specify at some length; but they do not pretend that he reached the Mississippi before his expeditions of 1679 and 1682. This silence is the more significant, as it is this very niece who had possession of the papers in which La Salle recounts the journeys of which the issues are in question. Had they led him to the Mississipi, it is reasonably certain that she would have made it known in her memorial. La Salle discovered the Ohio, and in all probability the Illinois also; but that he discovered the Mississippi has not been proved, nor, in the light of the evidence we have, is it likely."

On page 24 there is a footnote 1, being the footnote following the paragraph which I read, which sets out the journey in 1669 or 1670, in which he states that he came to the southern portion of Lake Michigan and crossed to a river flowing westward, evidently the Illinois.

3512 "Fig. 1. Seymour.—After stating as above that he entered Lake Huron, doubled the Peninsula of Michigan, and passed La Baye des Puante (Green Bay) says:

Il reconnut une baye incomparablement plus large; au fond de laquelle vers l'ouest il trouva un tres beau havre et au fond de ce havre in et louve qui ca de o'est a l'ouest. Il sar suivet ce fleuve et estant parvenu jusqua-environ le 280me degre de longitude et el 39me latitude il trouva un autre fleuve qui secjoignaut au premier coulait du nordouest au sudest er il suivet ce fleuve jusqu-au 36me degre de latitude."

"Tres beau havre" may have been the entrance of the River Chicago, whence by an easy portage he might have reached the Desplaines branch of the Illinois. We shall see that he took this course in his famous exploration of 1682.

3553 COUNSEL FOR DEFENDANT. I now produce a book entitled "Illinois, Historical and Statistical," by John Moses, published in 1889, and I offer in evidence a portion of that volume, commencing on the bottom of page 76, and running over a part of page 77:

"The question of routes followed by early explorers between Canada and the country of the Illinois is as interesting as it has been provocative of discussion among the speculative antiquarians. But as the investigation is not now of much practical value to the ordinary reader, but little space will be given to it in these pages.

Perhaps the most prolific source of doubt and difficulty in the individual to positively trace and identify any particular route, arises from the confounding of newly discovered streams with those first discovered, the same name being required to do duty for rivers as distinct as the individuality of the explorers who first sailed or paddled a canoe upon them. Thus the name of the Chicago, in its various orthographies, was applied more or less indefinitely to the St. Joseph, the Calumet, the Desplaines, and the Illinois rivers. Both of the latter were also called 'the Divine.' It was also applied to the country adjacent to the southern portion of Lake Michigan. Such confusion of nomenclature renders it extremely difficult, if not impossible, to determine precisely what stream or locality was meant when either of these names is used by early writers. It must be remembered that the fountainhead of information for early explorers was the Indians. To them even the primitive mode of transportation by horses or mules was unknown. They knew of but one way to abridge or vary

the tedious marches through forests or glades: That single avenue of escape was found in the waterways, and the shortest practicable portage connecting these was welcomed as the easiest way to avoid the physical labor which they considered as degrading as it was irksome."

Cavelier de La Salle, Margry Vol. 2, pp. 81 and 82. It begins on page 32. The heading as translated is:

"The letter of the discoverer to one of his asso-
3568 ciates," and this memorandum below, "the commencement is missing, but in order to complete it you can refer to the official relation of 1679 to 1671, of which the editor must have inspired himself in this letter, and the following one, because he copied them very often, and having always good care to leave out from his relation the difficult passages, where La Salle speaks of the trees, and names those of whom he complains."

The letter extends to page 93 and is signed by La Salle. The letter beginning on page 206 of that volume and extending to the bottom of the page, to the word "Mississippi." It is a letter of the Father Zenobie Membre dated The
3569 River of the Mississippi, 3 June, 1682:

"The prompt departure of M. de Tonty having prevented my writing to you further all that has happened to me since my departure from Fort Frontenac last year, I see myself obliged, after imploring your blessing, to go back in order to tell you the main happenings." (I have translated it very literally.) "Your Reverence has known the reasons which made me return to the Miamis in order to accompany from there M. de La Salle, and on his discovery of the sea, which I have done up to the present time. Since his arrival at the place mentioned we left from there with M. de Tonty some days before M. de La Salle, who joined us on Chicago, where another lot of his men joined us also, so that all were assembled at the beginning of January, 1682, at the place where Chicago enters into the river of the Illinois, and as it was frozen like the one we came from, we continued our route on the ice, pulling our canoes and belongings not only to the village of the Illinois, where we met nobody, all wintering somewhere else, but thirty leagues further down to the end of Lake Pimedy, where,

finding navigation open, we descended in canoes said river to the Mississippi."

3372 There was offered in evidence on behalf of the defendant the report of Jacob A. Harman, Sanitary Engineer, employed by the Illinois State Board of Health to that Board, and found in the report of said Board of Health for the year 1901, as follows:

3578 "Desplaines River—The Desplaines is a stream with moderate descent from its source to a point near the line of Cook and Will Counties, a few miles southwest of Chicago, where it begins a rapid descent. It makes a fall about 70 feet in eight miles, when just below Joliet it reaches a pool known as Joliet Lake, which continues nearly to its mouth."

Also, a portion of said report found on page 134:

"Stream Gaugings. Gaugings of the principal tributaries and of the Illinois river at Peoria were made during the low water stage in October, 1899, and represent approximately the average conditions of these streams during the late summer and early fall months. These gaugings were taken with a Price's current meter which had been previously rated by the United States Geological Survey. The beds of the streams were accurately cross sectioned and readings taken at the following stations:

Desplaines River—At wagon bridge about one mile below C. B. & Q. R. R. bridge near Riverside. Cross section was also taken at C. B. & Q. R. R. bridge for gaugings at higher stages of the river.

Flow 13.21 cubic feet per second. Turbidity .04."

Also a portion of said report appearing on page 159, being a table entitled "Resume of Precipitation on Illinois River Basin."

3580 "Sub-Basins.

	1890	1891	1892	1893	1894	1895
Desplaines	35.82	29.03	35.98	29.03	27.80	30.48
Du Page				31.32	27.15	29.94
Kankakee	36.74	27.46	36.71	26.06	27.15	29.33
Fox	33.63	32.94	44.41	30.37	30.51	29.19
Vermillion	32.02	34.18	41.00	27.09	28.85	30.95
Mackinaw	26.33	41.70	40.84	33.52	27.80	33.26
Spoon			37.16	29.70	25.32	33.20
Sangamon	32.35	36.39	42.37	31.99	27.46	33.61

Crooked Creek	29.13	33.49	40.48	31.14	27.84	36.43
Macoupin Creek	29.47	28.69	44.24	35.43	28.74	32.65
McKee's Creek	29.13	33.49	42.03	36.08	28.52	36.82
Illinois River direct	28.19	33.92	40.93	30.61	26.65	37.72
Annual Averages	31.18	33.13	40.56	31.03	27.82	32.29

Sub-Basins	1896	1897	1898	1899	Total Averages
Desplaines	33.74	30.55	37.74	28.03	31.82
Du Page	37.95	34.28	45.32	29.82	33.68
Kankakee	35.05	31.48	42.11	28.18	32.03
Fox	37.14	32.50	42.25	28.14	34.01
Vermillion	36.21	32.96	42.34	28.60	33.52
Mackinaw	35.37	29.43	42.96	29.62	34.08
Spoon	35.52	29.70	47.34	31.94	33.74
Sangamon	35.01	34.86	48.31	33.22	35.56
Crooked Creek	41.43	37.08	51.07	37.39	36.55
Macoupin Creek	36.97	37.17	49.46	37.20	35.90
McKee's Creek	39.91	37.95	52.15	37.61	37.37
Illinois River direct	35.05	33.12	46.77	33.05	34.01
Annual Averages	36.61	33.42	45.73	31.90	34.36"

Also a portion of said report found on page 183, as follows:

3582 "The flow of the Illinois river at Peoria is made up of the combined flow of the tributaries above, including the sewerage from Chicago which reaches the Desplaines river at Joliet by way of the Illinois river and Michigan Canal. The Desplaines river at Riverside, a few miles above Joliet, goes entirely dry at that point nearly every fall and for days and weeks at a time there is no appreciable flow. On the Du Page river, which enters the Desplaines a few miles above the junction of the Desplaines and the Kankakee, no data as to the low water flow is at hand, except the discharge measurement taken under my direction in October, 1899, which shows 32.77 cubic feet per second. This flow is greater than that found in the Desplaines river on the previous day. The flow in the Desplaines at Riverside was 13.21 cubic feet per second. The waters of the Du Page are added to the Desplaines before they reach the Illinois so that the natural flow in the Desplaines, where it joins the Kankakee to form the Illinois, at the time of the

gaugings referred to were taken would have been approximately 50 cubic feet per second, while the amount of sewage flowing through the Illinois and Michigan Canal was 600 cubic feet per second. Practically all of the flow of the Desplaines river as it reaches the Illinois, is therefore, during dry weather, Chicago sewage.

Detailed observations of the flow of the Desplaines river at Riverside have been taken more or less continuously since 1877. The area of the drainage basin above this point is 630 square miles."

Also from page 187 of said report:

3583 "The Desplaines and Kankakee which are the principal head water tributaries of the Illinois, constitute about one-half of the drainage area above Peoria, the only other tributaries of considerable importance being the Fox river from the north and the Vermillion river from the south. The total drainage area of the Desplaines river is 1322 square miles and the Kankakee 5146 square miles. The Fox river 2700 square miles and the Vermillion river 1317 square miles. The total area of the Illinois Drainage basin to Peoria is 13,479 square miles."

Also a portion of said report on page 188, as follows:

"From the foregoing data it is quite evident that the contributions to the flow of the Illinois river during the dry periods come principally from the Kankakee river and the Fox river, the Desplaines and the Vermillion being practically dry at these periods. The sewage from the City of Chicago, as we have found, being equal to or greater than the flow of all the tributary streams, some allowance, of course to be made for losses by evaporation between the headwaters of the Illinois and Peoria."

Motion by complainants to strike out all passages read from said last report, as being direct quotations or readings of which the primary record has already been proven; also because done loosely and broadly for general health purposes, and not having in view the present inquiry.

3585 COUNSEL FOR DEFENDANT. We propose to put in certain reports of various engineers who, in early days were employed to examine and report the best route for the proposed canal, and in order that your Honor may understand how this report came about, I am going to offer in evidence certain statutes.

The Act of March 30, 1822, Congress authorized the State of Illinois:

> "To survey and mark through the public lands of the United States, the route of the canal connecting the Illinois river with the southern bend of Lake Michigan."

Act of Illinois Legislature approved February 14th, 1823 (laws 1823, page 151, statutes of 1856, page 419) Commissioners were appointed:

> "To consider, devise, and adopt such measures as shall or may be requisite to effect the communication, by canal and locks, between the navigable waters of the Illinois river and Lake Michigan."

Act of Illinois approved January 2, 1829, statutes of 1856, page 41, directing the Governor, with the consent of the Senate, to appoint three commissioners, biennially—

3587 "Whose duty it shall be to consider, devise and adopt such measures as may be required to facilitate and effect the communication, by means of a canal and locks, between the navigable waters of the Illinois river and Lake Michigan."

Section 5 of said Act providing that the commissioners should have the territory of the state contiguous to the probable course of the canal, explored and examined for the purpose of fixing the most proper route, etc. Also providing that the canal should be at least four feet deep, and to be furnished with adequate locks, etc., to furnish navigation for boats of at least 75 feet in length, 13½ feet wide, and drawing 3 feet of water.

Also Section 7 of Act February 15, 1831 (Laws 1831, page 39, Revised Statutes 1856, page 426), authorizing the Canal Commissioners to employ an engineer, who shall examine the Illinois river, and if that river can be made navigable by dams from the mouth of the Fox to the head of steamboat navigation, then the commissioners shall have power to terminate the canal at the Fox river.

Section 13 of the same Act providing that the commissioners shall ascertain whether the Calamic river will be a sufficient feeder between the Chicago and Desplaines river "or whether the construction of a railroad is not preferable, or will be of more public utility than a canal." That if the commissioners are satisfied with the sufficiency of the river, they are to commence excavation without delay.

There was also read in evidence from Senate Journal (Illinois), 1835, page 17, from the message of William Lee D. Ewing, acting Governor, dated December 2, 1834, addressed to the Senate and House, as follows:

3594 "I need not refer more particularly to the contemplated connection of Lake Michigan and the navigable waters of the Illinois river. A bill to incorporate a company for this purpose passed the House of Representatives at the last session of the General Assembly, and was barely lost in the Senate. Since that time the subject has been extensively agitated by the community, and the opinion of our constituents in favor of that measure comes to us with unbroken unanimity, and deep will be their disappointment and abiding their denunciation, should the action of the Legislature fail of being responsive to their wishes and their interests."

There was also read in evidence from the message of Joseph Duncan, Governor of the State of Illinois, to the Legislature, dated December 3rd, 1834, and found upon pages 21 to 29 of the same volume last referred to, as follows:

3595 "The construction of a canal from Chicago, on Lake Michigan, to the Illinois river, has long occupied the public attention, and the time has arrived, in my opinion, when a proper respect for the interests of this, and all the state, requires that the work be commenced and completed without further delay.

It is now more than seven years since Congress made a grant of land which was then supposed to be sufficient for the construction of this canal; which canal was then, and is now generally considered a work of greater national importance than any work of the kind that has yet been proposed to be made in our country. Such is the universal estimate of its importance by all men of intelligence, that I have no hesitation in believing that ample funds can be procured on the most favorable terms, for its speedy accomplishment. * * *

In my judgment experience has shown canals to be much more useful, and generally cheaper of construction than railroads. When well made they require less expensive repairs, and are continually improving, and will last forever, while railroads are kept in repair at a very heavy expense, and will last about fifteen years. In the present case especially a canal should be preferred,

because it connects by a short and direct route, two great navigable waters, that wash the shores of most of the states and territories of the United States, and British provinces of North America; and thus opening a commerce between the remotest parts of the continent. By using the lake as a feeder to this canal a large body of water would be turned into the Illinois river, which will improve its navigation, and by increasing the current will, probably, render its shores more healthy."

Also from the message of Governor Joseph Duncan, dated December 4, 1838, addressed to the Senate and House of the 11th General Assembly;—found in the Journal of 1838-9, page 12, as follows:

3597 "The rapidly increasing commerce on those rivers requires an immediate improvement of their channels, and as the United States are bound to keep them open, by an agreement with Virginia, in the articles of cession, and with the governments of Ohio, Indiana and Illinois, in the following article of the ordinance of 1787, which was required to be made a part of the constitution of those states; to wit:

'Article IV. The navigation of the waters leading into the Mississippi and St. Lawrence, and the carrying places between the same, shall be common highways, and forever free, as well to the inhabitants of said territory as to the citizens of the United States and those of any other state that may be admitted into the confederacy, without any tax, impost or duties therefor;'

and as to those two rivers, the Wabash and Illinois, are recognized to be the waters alluded to and the United States have provided for improving the carrying places between them and the lakes, there can be no doubt, when properly informed of the importance and necessity of such good faith and immediately cause every obstruction to be removed from their channels. I would therefore recommend that the subject be laid before Congress at its present session."

There was also read in evidence from

"Report of Canal Commissioners of the State of Illinois, made to the General Assembly, on the 3rd of January, 1825, accompanied by a map of the proposed canal, together with the law incorporating a company to open

a canal to connect the waters of Lake Michigan with those of the Illinois river. 1825."

Said report is as follows:

"REPORT, ETC.

VANDALIA, 3d January, 1825.

To the Speaker of the House of Representatives:

3600 Sir:—The Canal Commissioners have the honor to enclose the report required by 'An Act to provide for the improvement of the internal navigation of this state' approved February 14th, 1823, accompanied by the report of the engineers to them, with the maps, plans and documents relating thereto.

They are, very respectfully, your Ob't Serv'ts,

(Signed) THOS. SLOO, JR., *President,*
THEOP W. SMITH,
EMANUEL J. WEST,
ERASTUS BROWN.

The Commissioners appointed by an Act of the General Assembly of the State of Illinois, entitled 'An Act to provide for the improvement of the internal navigation of this State,' approved February 14th, 1823, most respectfully present the following report to the General Assembly, being a 'plain and comprehensive report of their proceedings,' as by the said Act is required.

The duties enjoined by said Act on the Commissioners are first, to consider, devise and adopt, such measures as shall, or may be requisite to effect the communication.

3601 by canal and locks, between the navigable waters of the Illinois river and Lake Michigan.

Secondly, to cause that part of the territory of this state, which may lie upon or be contiguous to, the probable courses and ranges of said canal, to be explored and examined, for determining the most eligible route for the same; to cause surveys and levels to be taken, and accurate maps, field books, and draughts thereof to be made; to adopt and recommend proper plans for the construction and formation of a canal, and of the locks, dams and embankments, tunnels, culverts and aqueducts; and, to cause such plans, draughts and models to be executed:

Thirdly, to make calculations and estimates of the expenses of the foregoing operations:

Fourthly, to invite the attention of the Governors of

the States of Ohio and Indiana, and through them to the Legislatures of those states, to the importance of a canal communication between the Wabash and Maumee rivers.

The commissioners met in Vandalia shortly after the passage of the Act referred to, and, after organizing the board, from various considerations, were of the opinion that they would best effect the intentions of the General Assembly by securing the services of one of the principal engineers employed in the construction of the New
3602 York Canal; and for the accomplishment of that object addressed letters to Messrs. Benjamin Wright, and James Geddes, who had been thus employed. Both these gentlemen having declined as will be seen by their answers herewith communicated, they employed a gentleman about to visit New York, to complete an arrangement with some competent person in that state, under the advice of the President of the New York Board of Canal Commissioners.

This gentleman's interviews resulting in no positive engagement, and considerable time having elapsed, they felt themselves compelled to seek some competent person, to execute the duties of engineer, within the immediate vicinity of this section of the western country; and they feel no small gratification in being enabled to say with confidence, that in their opinion, the duties which have been entrusted to and imposed upon the gentleman whom they have selected, have been executed with a skill and ability not surpassed by any one engaged in similar services.

As the country situated between the navigable waters of the Illinois river and Lake Michigan, is remote from the inhabited parts of this state, and the topography was imperfectly known, the Commissioners conceived it essentially necessary to a correct execution of the duties with which they were entrusted, to explore the country previously to the taking of the levels, and causing the surveys to be made; as without this examination, it was impossible to determine, with any accuracy, where the leveling and surveying ought to be commenced, the probable course to be run, or the point of termination; and, as affording the additional advantage of a correct data, for the ultimate execution of their duties, at the least possible expense.

A portion of the Commissioners, therefore, in the fall of 1823, accompanied by Col. Justus Post, whom they had engaged as their engineer, explored and examined the country from the rapids of the Illinois river, with the streams emptying into the same, to Lake Michigan; and the country bordering on the Chicago river and Calamic, which streams also empty into Lake Michigan. The Commissioners returned by water in canoes, examining the bed of the rivers, particularly the depth of the water, and the height of the river bank. They also ascended the Chicago river, or Arm of Lake Michigan, having its confluence with that lake on the west side, about 35 miles below the head of it, to the head of the river, 5 miles. From this point there is a portage of seven miles to the River Desplaines. They then descended the Desplaines 50 or 60 miles, to its mouth; where the uniting with the Kan-Ka-Kee, a considerable river from the southeast,
3604 its source being in the country with those of the Wabash and Saint Joseph, the River Illinois is formed; thence down this river to its confluence with the Mississippi, 350 miles; thence down the latter 18 miles to Alton, the place from whence they had departed.

It is a source of much satisfaction for the Commissioners to be enabled to state, that the result of this examination eventuated in the conviction, that, from the mouth of the Illinois river, to the Little Vermillion, a handsome stream 12 or 15 feet wide, discharging its waters into the Illinois river on the west side, and about 4 miles below the rapids of the Illinois, there is not the least obstruction to the navigation, excepting in two or three places below Spoon river, in extremely low stages of water, where small sandbars show themselves, but which, however, can be easily removed.

Perhaps no river on the continent surpasses the Illinois in the facility and safety of its navigation, the current very gentle, and there being but few islands in the river.

From the mouth of the Little Vermillion, above referred to, neither the Illinois, nor the Desplaines is navigable in low stages of water, as they are frequently interrupted by rapids; but no serious obstacles present themselves, in effecting a canal navigation from the head of the navigable waters of the Illinois river, to

Lake Michigan; the valley of the Illinois and Desplaines, being an inclined plane, and the country between the Desplaines and the Chicago river smooth, flat prairie, with gentle inclinations to the lake.

The country being, as already remarked, uninhabited, the spring seasons extremely wet, and in summer the grass extremely high, the Commissioners, (thought) the proper time to make the requisite surveys, and levels, would be in the fall of the year, as the work could then be performed more accurately and expeditiously and with much less expense than at any other time. Under these considerations preparations were made to begin the leveling and surveying as early in the autumn of 1824 as the grass and vegetation could be destroyed by fire; this being an inseparable and preparatory act for the commencement of the work. To wait for this period, necessarily involved a further consideration, that there would not be time sufficient for one engineer to perform the work in season, to enable the Commissioners to make a report of their proceedings to the General Assembly at its present session; it, therefore, became necessary to employ another engineer, to assist in executing the levels, surveys, draughts and plans, and, accordingly, Col. Rene Paul, of
3606 Missouri, was selected by the Commissioners for this purpose.

The engineers, with one of the Commissioners, proceeded, accordingly, with two companies, several of the members of which were occasionally left behind by reason of sickness. One of the companies to Chicago, on the shore of Lake Michigan and the other to the rapids of the River Illinois, with a mutual understanding to confine their operations of leveling to the north side of the Illinois and Desplaines, and the valleys of those rivers. The party at Chicago, after sounding and examining the depth of water on the lake shore, near the Chicago river, and sounding and meandering that river to its head, (the waters of which were found stagnant and on a level with the waters of Lake Michigan) proceeded leveling in a direction to the ford of the Desplaines, where it approaches, in its nearest point, to the Chicago river; then crossed that stream, and descended on the north side, until the company, which had

commenced leveling and surveying at the foot of the rapids, intercepted them.

The object of the surveying and levelling, being to ascertain the summit level and inequalities of the surface of the country, between the Illinois river, at the foot of the rapids, and the lake, and to ascertain the inclination from the summit level to both the lake and the
3607 river, as well as the courses and distances, to enable the Commissioners to consider the practicability and probable expense of constructing a canal, connecting those points, immediate reference was not had to the actual location of the canal line, but throughout the entire route, great caution was observed in keeping on ground not sensibly affected by the inundation of river banks.

The Commissioners are fully satisfied of the practicability of the proposed communication, and of the facilities which the country, and the character of its resources, in general, afford for the completion of so great and desirable an object; and as the accompanying report and plans of the engineers, afford a more detailed, scientific and accurate exposition than they could possibly offer themselves, they refer thereto, for more minute and particular information than is contained herein; contenting themselves with stating the general results, which their own observations, and the examination of the various reasons connected with the information afforded by the report of the engineers, have enabled them to arrive at.

From the ascertained levels, as described in the report of the engineers, it seems certain that the surface water level of Lake Michigan is 157 feet 11 inches and
3608 7-10ths above the surface water level of the point at the mouth of the Little Vermillion river, as designated on the profile of the route by the engineers, where it is contemplated to connect the canal with the River Illinois.

Five routes are proposed, as will be seen by reference to the report of the engineers, but it will be understood that these five routes are not different ones altogether, but only variations of a portion of the upper part of the general route, lying between the head of the Chicago river, and a point on the River Desplaines, near the head of Isle a la Cache; and that from this point,

to the mouth of the Little Vermillion, all the routes are the same, excepting in that designated in the report of the engineers, from A to H, with the intention to use the water of Lake Michigan for a feeder; and after passing the River Desplaines, by an aqueduct, at the point H, to connect the canal with the principal line at K, and thence to the mouth of the Little Vermillion.

As these routes are all accurately and minutely described in the report of the engineers, the Commissioners deem it unnecessary to present in their report a recapitulation of them, and therefore, refer thereto, for the distance of each, the necessary excavations, with the number of dams, locks, aqueducts, culverts and embankments, and the probable expense of each.

3609 From an examination of the data assumed by the engineers, in their calculations of the probable expense of these different routes, the Commissioners are induced to believe that those calculations will not vary materially from the actual expense, and they are rather inclined to the opinion that the cost will not exceed, in any case, the amount of the estimate.

First route is estimated at	$716,110.71
Second route	639,542.78
Third route	668,289.68
Fourth route	682,610.20
Fifth route	689,746.96

These estimates, it is true, exceed considerably the general expectation, and the Commissioners are too well aware of the embarrassments in the financial situation of the state, at present, to indulge a well founded hope that immediate measures can be adopted, for executing a work of so much importance.

The distance, as well as the general character of the streams, between the points designated in the surveys, and through which the communication is supposed to be effected, has been greatly misunderstood, and hence the amount of the expense, has been in public estima-

3610 tion, greatly underrated; but still, when a survey is taken of the great and various objects, and the peculiar beneficial results which would inevitably accompany the completion of this work, whether of a commercial or political nature, the mind ardently grasps at the projects, and hope leads it to the conclusion that the day

is not far distant, when, either by a great and persevering effort of the state, or by the magnanimous exertions of individual enterprise, this desirable and noble object shall be attained.

To this point, the attention of every enlightened mind within our state ought to be directed. It is one connected with the general interests of several of the states, and so intimately with our own, that in it is greatly involved the dearest and best hopes of our future wealth and importance. Every consideration, therefore, of interest, or of pride, ought to induce us to seek for the early adoption of measures, commensurate with its accomplishment. It is supposed that its execution might be effectuated by a liberal grant to individuals of the right to construct the same, with certain benefits accruing to them therefrom; but whether a monopoly of the kind would be an act of sound policy on the part of the state under existing circumstances, is a subject of serious consideration for the legislature, it is not, however, to
3611 be denied in the present deranged state of our currency, that the state at this time, nor indeed for many years to come, can, in all human probability, even attempt the execution of the work. Under these considerations, it might be advantageous to the great interests of the state to encourage individual enterprise, as it is probable that by such enterprise alone this important work can be commenced and consummated within any reasonable period. What will, all circumstances considered, be the soundest policy to be pursued, is a subject for the consideration of those, to whom the general and permanent interests of the state are, or shall hereafter be confided.

The Commissioners forbear to add any further remarks on the importance of a subject, to which the attention of many of the most enlightened statesmen in the United States, has been a long time drawn, and which, in this enlightened age, is becoming one of the cardinal policies in all states.

The accompanying correspondence marked 'A,' will show what progress has been made in the execution of the duties imposed on the Commissioners, under the fourth head, as stated in this report. It is proper to remark, while on this subject, that no answer has been

received from the Governor of the State of Ohio, to communication addressed to him by the President of the Board.

The Commissioners, in concluding their report, will remark, that in presenting the account of their expenditure to the Auditor of Public Accounts, they are aware that the actual expense will have exceeded the appropriation made by the last General Assembly, yet, when the currency in which that appropriation was made, the great depreciation which it suffered between the time of its appropriation and its receipt and payment, with the deduction for interest on the bank notes, when drawn at the bank, and the nature and extent of the work performed, are considered, it will be satisfactorily perceived, that no work of equal magnitude, of the kind, has ever been performed at so cheap a rate.

THOS. SLOO, JR.,
President,
ERASTUS BROWN,
EMANUEL J. WEST,
THEOP W. SMITH.

Vandalia, 3rd January, 1825."

Counsel for defendant also read in evidence from the "report for the Canal Commissioners of Illinois to John R. Tanner, December 1, 1900, pp. 73 and 74, and excerpts from a letter of J. M. Bucklin, Engineer Illinois & Michigan Canal, dated December 18, 1830, to the Honorable Board of Canal Commissioners of the State of Illinois;"

3651 "*To the Honorable Board of Canal Commissioners of the State of Illinois*:

Gentlemen: In compliance with your instructions, I now lay before you the result of the surveys and examinations confided to me on that part of the proposed route of the Illinois and Michigan Canal, which is included between its entrance into the Chicago river and the western margin of the Ausogamashkee swamp, made with a view to its permanent location upon what has been considered the only practicable plan of obtaining a sufficient supply of water for the use of the summit level, assuming the bottom of the canal at its head to be four and one-half feet below the level of Lake Michigan.

From the mouth of the Chicago river to the point fixed upon as the entrance to the canal, there is no obstruction whatever to its navigation by boat drawing under five feet for that distance, which is five miles, this river forms a perfect natural canal, its banks being low and of uniform heights and its waters supplied by the lake.

Leaving the river at the point above mentioned, the line of the canal inclines toward the Regula (as will be seen by a reference to the accompanying map), and follows along the margin of the portage lake until it
3652 strikes the River Desplaines at the ford a distance of nine miles; the excavation throughout this distance will pass through a hard ferruginous clay (as has been ascertained by borings) at an average depth of 15.41 feet."

From page 74, I read:

"The River Desplaines when low affords a very inconsiderable quantity of water, but the Calimic river which empties into Lake Michigan about 12 miles south of Chicago, furnishes an abundant supply (320,000 cubic feet per hour) and in every respect, so far as my observation extends, advantageously situated as a feeder. Too much time was necessarily consumed in the survey of the line of the canal to admit of as particular an examination of this river as from the facts collected respecting it, it undoubtedly deserves."

Same report, pp. 88, 91 and 92, extract from a letter of J. M. Bucklin, Engineer Illinois & Michigan Canal, dated January 1, 1833, to Charles Dunn, Acting Commissioner Illinois & Michigan Canal.

Objection.

"Sir: Your instructions respecting the continuation of the survey of the route of the canal, and the examinations necessary to a correct understanding of the adaptation of the country between Lake Michigan and the Illinois river to the respective improvements under consideration, were observed early in the spring of 1831
3653 by an examination into the practicability of making the Calamic river tributary as a feeder to the Illinois and Michigan Canal. Its successful result, although highly important as a means of avoiding a great source of expense in the event of the construction of the canal, was

lessened in value by the development of unexpected obstacles, over which it had no control, in the process of a subsequent survey of the remaining part of the route of the canal from the termination of the survey of 1830 at the Ausoganashkee swamp to the navigable waters of the Illinois river.

The discharge of the Calamic river in the fall of 1830, a season of extreme drought, amounted to 320,000 cubic feet per hour, which may be safely relied upon as its minimum discharge. This quantity was considered sufficient for the upper portion of the canal, but by the late survey the length of the canal to be supplied from the summit until relieved by the River DuPage proving to be much greater than was anticipated, an additional supply of 102,400 cubic feet per hour will be required for its consumption. The River Desplaines in most seasons, would alone make up the deficiency, but in the fall of 1830 its discharge was at one period reduced to 60,000 feet per hour. Relying upon its contributing this quantity of water in the driest seasons, there will still remain a deficiency of 42,400 cubic feet for which there
3654 is no resource but the establishment of an artificial reservoir on the summit level. The Ausoganashkee swamp presents great advantages for this purpose as it receives the drainage of the country to a great extent, and is susceptible at a comparatively small expense, of being rendered more secure from breaches and other casualties than most works of a similar description."

* * * * * *

"It has been also proposed to effect a water communication between the lake and the Illinois river by means of dams and locks in the Desplaines, forming a still water navigation, knowing the minimum discharge of this river the impracticability of the scheme is so evident that the subject is here noticed more as a matter of form, than with any expectation of rendering it clearer. It will be recollected that the quantity of water provided for the passage of 96 boats over the summit level every 24 hours in the canal, is 86,400 cubic feet per hour, that is one lock chamber full of water every
3655 fifteen minutes, ascending and descending.

The minimum discharge of the River Desplaines is only 60,000 cubic feet per hour. Of course, it is not

competent to supply even the lockage (which on this plan cannot be less than that required for the canal) without taking into consideration the loss by evaporation and leakage, which would alone consume at least seven times the quantity of water discharged by the River Desplaines at its lowest stage."

Same report, p. 135, letter from William Thomas, Chairman of Committee on Canals, etc., dated February 8, 1837, to the aforesaid J. M. Bucklin:

"Not being an engineer nor familiar with the calculations in relation to the quantity of water required to supply a canal of the size contemplated, I take the liberty of asking your assistance, and request the favor of you to review the calculations heretofore made by yourself and others in reference to the quantity of water in the Calamic, and to state the quantity required for the canal as at present proposed to be constructed. You will also state if there is anything peculiar in the nature of the country, to justify the erecting of a canal without providing the usual quantity of water for evaporation and leakage. All the documents, except the report made by you in 1830, will be furnished if desired.

Very respectfully,
Your obedient servant,
WM. THOMAS,
Chairman of the Committee on Canals, etc."

What I propose to offer is, first showing how this report came to be written. (Same report reply of J. M. Bucklin to the above letter of William Thomas):

"Sir: It will give me great pleasure to afford you
3657 any information that I may possess in relation to the interesting subject which you have before you. I can, however, do little more than recapitulate the information that has been derived from various sources respecting it.

The River Desplaines was gauged, at Laughton's Ford, by Messrs. Post and Paul, in the first survey that was ever made of the route of the Illinois and Michigan Canal, and the discharge found to be 72,000 cubic feet per hour. They also gauged it and the Cache Island, 18 miles below, when they ascertained the discharge to be 117,000 cubic feet per hour. In October, 1829, it was

gauged by Dr. Howard, U. S. Civil Engineer, who places the discharge at 96,480 cubic feet per hour. At the same place (Laughton's Ford) it was again gauged by Messrs. Harrison and Guion, on the 8th of August, 1830, and found to discharge 60,000 cubic feet per hour. The Calamic river was gauged by me in the month of September, 1830, and found to discharge estimated at 320,000 cubic feet per hour. It was also gauged by M. Guion, assistant civil engineer, in the service of the United States, about the same time, and the discharge placed by him at 1,033,000 cubic feet per hour. It may be proper to remark here that the fall of 1830 was a season of extraordinary drought.

On the Erie Canal in the State of New York, the supply not being very abundant in some parts of it, great care was taken to ascertain the quantity of water required to supply the evaporation and leakage in dry-
3658 seasons, and it was determined by experiments that on the middle and western division 100 cubic feet per minute per mile was a safe estimate 'with proper care in guarding against the waste of water.' On the eastern division 125 feet was required. On the canals in the State of Ohio, 100 cubic feet per minute was adopted as the minimum; and in the State of Indiana it has since been adopted as a standard in estimating the supply required for a canal of 40 feet surface, and four feet depth of water, except in one instance, where the canal passes through an uncommonly wet region of country.

The allowance of 100 cubic feet per mile per minute of evaporation and filtration was assumed by me as the basis of all calculations in deliberating the minimum quantity of water to be provided for the Illinois and Michigan Canal.

The surface of the canal as at present proposed to be constructed, is 60 feet, and bears the proportion of one and one-half to one to the surface of the canal as at first proposed. The depth of water is now six feet, whereas it was formerly four feet, consequently the pressure being as the squares of the heights, and the leakage nearly as the square roots of the heights, the pressure will be more than doubled, and the leakage (taking into calculation the great surface) increases in proportion to one and a half to one. The quantity of

water then that will be required to supply the evaporation and leakage in a canal of the dimensions proposed,
3659 will be 150 cubic feet per minute per mile; and with reference to the peculiar character of the country through which the canal passes, I know of nothing which will justify a departure from the established rule in regulating the supply of water. It is true, the upper level is situated in a very wet country, but the levels below dependent upon summit for water, are located on ground very badly calculated to retain it, and it is possible that more than the ordinary supply may be required.

If the project of supplying the canal from Lake Michigan is abandoned, and the high level resorted to, the length of canal, including feeders, to be supplied with water on the upper level, is 56 miles, which will require 8,407 cubic feet per minute to supply evaporation, and leakage, and a further supply of 2,112 for lockage, making in all a minimum supply of 10,512 cubic feet per minute.

Very respectfully your obedient servant,

J. M. BUCKLIN."

Counsel for defendant also read the following report of Benjamin Wright, an engineer, page 173:

3661 Dated Chicago, Oct. 23, 1837.

"*To the Board of Commissioners of the Illinois & Michigan Canal*:

Gentlemen:

Having been appointed by your honorable Board, under the third section of the law of the State of Illinois March 2, 1837, to survey and examine the route of the canal as now established, with a view of ascertaining whether there is a sufficient quantity of water, with the legitimate authority of the State of Illinois, to use, to supply a canal of the same size and dimensions, as the one now contemplated to be constructed upon the summit level of said line of canal; I have, in pursuance of the duties here appointed out, passed over the whole line of canal from Lake Michigan to Peru, examined all the plans and profiles, and received explanations and descriptions of every part of the work as projected and marked out, as well as all those parts now in progress of working under contract; and I think I may say I have now possessed myself of a full knowledge of the

details of the work, as designed by your chief engineer, in all its localities and bearings, upon the very important question of water, upon which I am required to act.

3662 It appears by the Act of the Legislature above referred to that 'a supply of water from sources within the legitimate authority of the State of Illinois, was to govern all actions upon this matter, and that your Board had early directed such river to be more fully examined than had heretofore been done.

From an examination of the various canal documents of the last session of the legislature, it seems that the question stands as follows:

Shall the feeding water be taken from Lake Michigan by a deep cut? Or shall the summit be raised 10 feet above the lake, and fed from streams to be brought into it? It has been supposed, and no doubt correctly, that only three streams of water can be brought on the summit level; First, the Desplaines river; then second, the Calumet river; third, the Fox river.

The Desplaines was not in a proper situation to gauge, as there had been copious rains; I, therefore, take the former measurements of the United States engineers, as stated in the reports of the Canal Committee, at 54,800 cubic feet per hour.

By calculation it is found that, if 12 boats pass per hour, the lockage water to lock up and down 10 feet will be 475,200 per hour. If we then add for leakage at the locks (a small item), and for the evaporation, we ought

3663 not to say less than 500,000 cubic feet of water per hour will be required, when boats are passing as fast as they can be let through (or 12 per hour). It is true that, if boats passing each way were to meet so as to pass a boat up with the same water which passed one down, the only half above amount of lockage water should be estimated for the 12 boats per hour, although, I believe 12 boats per hour may be passed each way, if the locks are well attended, and are in perfect order for filling and discharging the water rapidly.

These premises being admitted, we have to look for 445,200 cubic feet of water per hour more than the Desplaines gives us at low water."

Then on page 146, same report. Pages 146, 147, extract from report of Board of Canal Commissioners submitted by W. F. Thornton, President, Jacob Frye, Acting Commissioner, to Thomas Carlin, Governor of Illinois, December 13, 1838:

"In the quarterly report of the Board, transmitted to the General Assembly in July, 1837, it was stated that the correspondence had been opened with Judge Wright, an eminently 'skillful engineer,' with a view of the surveys and examination required by the 3rd section of the amendatory law passed in the previous March. In the meantime Mr. Burnett, who is the resident engineer of the 3rd division, was instructed to make a critical and thorough survey of the dividing ridge between the Fox and Desplaines rivers, and within the limits of the state. This duty he performed with great care, eliciting information from every accessible source, and indulging those persons who desired explorations of particular depressions previously supposed and asserted to be sufficiently low to afford a cheap feeder.

Judge Wright arrived at Chicago in the early part of October, and on the 20th of the same month, Mr. Burnett made a detailed report, with a topographical map, and estimate of the quantities of excavations and other work necessary to effect the object on the most favorable route of the country, was susceptible. At that time, and through the whole summer, the Desplaines river was generally admitted to be unusually flush, as was also the Calamic. No gauges were therefore, ordered, and consequently, those of the Desplaines made by the United States Engineers in 1830, and of the Calamic, by Mr. Bucklin, were adopted as the basis of the investigation. Keeping in view, however, that the truth of these gauges had been strenuously controverted by the ad-
3665 vocates of the upper level or 'shallow cut' and that capacity of the Calamic had been contended to be even superabundant, the attention of the examining engineer was particularly directed to the question, whether the Calamic could in any event be classed among waters which the law contemplated as 'sources within the legitimate authority of the State of Illinois'; a question which his reputation for sound judgment in everything connected with canaling, his knowledge of the requirements of Indiana dependent on the Calamic, and his great ex-

perience in the adjustment of similar claims, pre-eminently fitted him to answer with confidence. His plain, free and very decided report, marked 'G,' to which Mr. Burnett's is appended, will afford all the information required by the statute which enjoined the examinations. But notwithstanding the opinion of the Commissioners, that the report of Judge Wright,—so completely confirming their original plan—should alone determine the mode of feeding the canal, they still thought it advisable to seize the first opportunity of regauging the summit streams, and examining the suitability of the country for sustaining assistant reservoirs. The past dry season rendered the measuring of the Desplaines almost unnecessary, since, for nearly four months the tightest dam that could be erected, would
3666 not at the point for taking out the feeder, have saved water enough to propel a single pair of ordinary mill stones. Repeated gaugings from the 20th of July to the 22nd of August, and it was afterwards still lower, gave an average of less than the measurement of 1830."

COUNSEL FOR DEFENDANT. I want to, in connection with this, to call attention also to the act of the revised statutes of Illinois of 1908, Ch. 121, Section 265.

"That all bridges now constructed, or hereafter to be constructed, over the navigable portion of the Illinois river, there shall be built, and kept in good repair bridge pier booms."

3667 Thereupon counsel for defendant introduced in evidence extracts from the following report of the Canal Commissioners, dated December 13, 1838, addressed to his Excellency Thomas Carling, Governor of Illinois, read, page 20:

"From Norman's Island to Dam No. 1, which is located upon canal land just above the Town of Joliet, two strong walls with embankments between them will be constructed upon the east side to confine the water in the pool of the dam. It is proposed to raise these walls and embankments seven feet above the comb of the dam, to be perfectly secure from the highest floods. From Dam No. 1 to Dam No. 2, a similar defense will be required to a much less height. Both dams will be made
3668 of good cut stone masonry laid in hydraulic cement.

Dam No. 1 will be connected with lock No. 5 which will be upon the west or towing path side. Here also a large amount of water power will be created, which at this point will be particularly valuable and confer great additional value upon the state property."

3669 Thereupon counsel for defendant offered in evidence a certified copy by Christopher Mamer, Clerk of the Supreme Court of the State of Illinois, the certificate being dated April 1st, 1908, of a stipulation in the case of Philo A. Haven and Orlando H. Haven *vs.* Board of Trustees of Illinois and Michigan Canal, filed in that office on the 11th day of June, 1849.

3670 COUNSEL FOR DEFENDANT. There is a stipulation as to an order of the court; final judgment. I do not intend to read this entire stipulation, at least not at this time, but I offer it all in evidence.

3671 I will read the whole of it. Said document is as follows:

"Philo W. Haven & Orlando H. Haven *vs.* The Board of Trustees of the Illinois and Michigan Canal.	Will Circuit Court October Term, A. D. 1848.

The plaintiffs and defendants in this cause agree upon the following statement of facts to be submitted to the court for their decision thereon.

1. The plat hereto annexed numbered (1) is a plat of Section Sixteen in Township Thirty-five North, of Range Ten East of the Third Principal Meridian and also the plat of Section nine in the same Township being two plats of said section as returned by the Surveyor General of the United States and deposited in the land office at Chicago, on which said plat is represented the Desplaines river as it runs through said section.

And it is admitted that said Desplaines river is meandered through the entire length of said sections as appears from the minutes of said survey in the said Surveyor's Office, a copy of which minutes are also attached marked (2) and delineated on said map.

It is also admitted that said Section Sixteen is one of the sections granted by Congress to the State of Illi-

nois for the use of the inhabitants of the township in which the same is situated for the use of the schools
3672 and accepted by an ordinance accepting certain propositions made by Congress April 18th, 1818. On the 26th of August, 1818. It is also admitted that the plat hereto annexed marked (3) is a true copy of the plat of said Section Sixteen and duly laid out and subdivided and certified and acknowledged and recorded according to law as set forth on said plat; and a plat of said river, and canal, with the dams, basins and locks, as made and constructed from Lockport 4½ miles, above the said plaintiff's mill dam to and below plaintiff's mills is hereto annexed marked No. 41.

It is also admitted that at a sale of lots in said Section Sixteen in October, 1834, by and under the authority of the state in pursuance of the statute in such case made and provided, John H. Kinzie, purchased lots one and two in block 57 and that patents issued to John H. Kinzie for the same in 1835 conveying title and fee simple as by law directed and that said John H. Kinzie conveyed to Martin H. Demmund and John M. Wilson his title as above stated and that Martin H. Demmund and John M. Wilson subsequently conveyed the same to the plaintiffs herein, lots one and four in block 56 were sold at the sale of said Section Sixteen in 1834 and were afterwards purchased by the plaintiffs for taxes and a deed bearing date obtained of the sheriff and they have until this time remained in undisputed possession of said lots except so much of them as has been appropriated by the canal. It is admitted that the Illinois and Michigan Canal was commenced in 1836 and that portion of the canal through said section was put under contract in 1838 and the Guard Lock on Section Nine near the dam across said river just above said Section Sixteen was commenced in 1840 by digging the pit in the spring and a part of the stone laid in the fall. The stone for the same were quarried and dressed during the spring and summer of the same year. The stone for the said dam on Section Nine (which is a cement and cut stone dam) were commenced the same season and the dam was commenced the following season in being quarried and cut in the spring and finished in the fall of 1841, the contracts for building said lock and dam were made

in 1839 and it was generally understood as early as 1839 that said lock and dam were to be built. It is agreed that in the spring of 1839 the plaintiffs commenced building a mill on said lot one in block 57 on Section Sixteen, and also a dam across the Desplaines river connecting said lot one in block 57 on the east bank of said river with the division line between lots one and four in block 56 on the west bank of said river and completed said dam and sawmill so as to use the same in the following October or November. Soon thereafter the
3674 Commissioners of the Illinois and Michigan Canal in constructing said canal reserved the west end of said dam so that it became connected with the east bank of the canal, which bank encroached upon the material channel of the river about ten feet. The head and fall at said plaintiff's dam used by them in propelling their machinery is six feet leaving a fall on said lots one and two in block 57 of about six inches more. In the year 1842 the plaintiffs also built a grist mill on said lot two in block 57, also added to the sawmill a lathe mill in 1843 and built a dwelling house on said lot one in block 57 in 1846 and also a machine shop on said lot one in block 57 in 1847. Said mill and buildings have been used by the plaintiffs for the uses and purposes for which they were built from the time they were built as aforesaid till the 20th day of April, 1848. The water in said river being at times insufficient for all said machinery. On the 29th of April, 1848, the defendants diverted or caused to be diverted into the canal for the use of said canal from the material channel of the river the whole or principal part of the waters of said river by turning the same from the basin made in said river by means of the dam on Section Nine being a canal section and about ½ mile next above the dam of said plain-
3675 tiff so that the plaintiffs are wholly deprived of the use of the water at their said mills and have not since been able to run their machinery. From the time of putting this portion of the canal under contract in 1838 and up to the year 1843 there had been no change in the original plan of supplying the canal with water upon Lake Michigan by the deep cut as originally contemplated, and all contracts let previously to 1834. And all the arrangements of said canal were made notoriously upon the plan aforesaid and with a view to supply the

canal from Lake Michigan. It is also admitted that the Desplaines river is not navigable in fact although a portion of it is declared to be so by act of the legislature, the work upon the canal commenced being suspended in 1841 and was entirely suspended from 1842 to 1845. The question of law arising from the state of facts is whether the plaintiffs are entitled to compensation for the injury and damage they have sustained in consequence of the diversion of the water of the Desplaines river as aforesaid into the canal as aforesaid, and it is stipulated and agreed that whichever way the judge decides said question either party shall have 30 days from and after notice of said decision to take an appeal therefrom or bring a writ of error to the Supreme Court if the said decision shall be made in favor of the plaintiffs by the Circuit Court and the defendants do not appeal therefrom or bring a writ of error within the time aforesaid or if upon appeal the Supreme Court shall decide in favor of the plaintiffs' right to recover their damages as aforesaid then appraisers shall be appointed by the judge of said Circuit Court to appraise the damages under and in pursuance of the 9th section of the Act of 2nd March, 1837, and party reserving the right to make objections to the report of said appraisers before the Circuit Court and to appeal from the decision or order of the Circuit Court upon such appraisal as provided for in said act.

COLLINS & WILSON,
Plffs. Attys.
I. N. BUTTERFIELD,
Atty. for Defts."

Certificate of C. Mamer, Clerk of Supreme Court attached to above.

3764 There was then offered in evidence on behalf of the defendant portions of the report upon the survey of the Illinois river signed by James H. Wilson, Lieutenant Colonel, 35th Infantry, Brevet Major General U. S. A. and William Gooding, U. S. Civil Engineer and Brevet Major General A. A. Humphreys, Headquarters Corps of Engineers, Washington, D. C. The report is dated "United States Engineering Office, Davenport, Iowa, December 17, 1867." It is headed "Report upon the Survey of the Illinois River," and begins at page 438 of volume entitled "Messages and Documents,

War Department," and the title page reads, "House of Representatives, 40th Congress, 3rd Session. Ex. Doc. 1, pt. 2. Message of the President of the United States and Accompanying Documents"—A part of the message of the President, and one of the accompanying documents.

The portion of said report referred to is as follows:

3765 "General: Having been designated by direction of the secretary of war, through engineer orders dated Washington, May 8, 1867, as a board 'to conduct surveys and examinations, and to prepare plans and estimates for the system of navigation by way of the Illinois river, between the Mississippi and Lake Michigan, adapted to military, naval and commercial purposes, in accordance with the act of March 2, 1867,' we have the honor to submit the following report:

In carrying out the instruction of the engineer department, we have steadily kept in view of the following considerations:

1. The selection of the best route for the purposes proposed.

2. The capacity which should be given to the improvement so as to adapt it more fully to the requirements indicated in the orders of the War Department.

3. The accomplishment of the object with the least possible cost consistent with the magnitude and permanency of the improvement, and in such order as to secure the greatest advantage to the commerce and navigation of the country.

"A detailed report of the results of the survey of the Illinois river during the latter part of 1866, under the direction of Brevet Major General J. H. Wilson, was made on the 17th of February, 1867, but as his operations were confined to that part of the river below La Salle, it was thought necessary to continue the surveys to Lake Michigan by all the possible routes, before absolutely fixing the details of the plan of improvement. Accordingly, at as early a date as the season would permit, we organized, under the general authority heretofore cited, three surveying parties under the immediate supervision of Civil Engineer Assistant James Worrall, for the purpose of making a thorough and exhaustive examination of the entire region lying between the southern and western end of Lake Michigan

and La Salle on the Illinois river, and also for the purpose of conducting a low water survey of the river from La Salle to its mouth. To the first of these parties, under Civil Engineer Assistant George Butler Griffin, and afterwards under Civil Engineer Assistant H. Alppers, was assigned the duty of surveying the line of the canal from Chicago to La Salle, the Desplaines and the Illinois rivers, and all the alternate lines which had at any time been spoken of, including that of Mud Lake."

3767 Also, from page 440 of said report:

"General consideration of the proposed improvement.

No fact can be better established than that the system of navigation between the Mississippi and Lake Michigan, by way of the Illinois river, should be adapted to the steamboats and barges employed in the navigation of the Mississippi and its principal tributaries, and not to ocean and lake vessels, except such as are required for the defense of our lake commerce and cities. In other words, the produce of the west, on its way to eastern markets, must be transferred to a different class of vessels as soon as it reaches the lakes; and hence in determining the dimensions of the canal; it will be amply sufficient for all practical purposes to arrange it for the navigation of the largest class of river steamboats. It will be remembered that the western steamboats are built with overhanging guards, so that a boat 75 feet wide over all will not usually exceed 45 feet in the hull. * * *

It is true that it has long been generally understood that the only practicable route for such improvement from Lake Michigan to the Illinois river would be to follow the course of the present Illinois and Michigan Canal from Chicago until a point was reached where it would be expedient to improve and occupy the river, rather than enlarge the canal to the requisite dimensions.

This canal, from a point eight miles southwest of Chicago, follows the valley of the Desplaines, a tributary of the Illinois, until it forms a junction with the Kankakee river, some 50 miles southwest of Chicago, below which the river is known upon the map as the Illinois. The latter name would have been more appropriate for the Kankakee above that point, as it is the main river,

and Desplaines, in low water, contributes a comparatively insignificant quantity to its volume.

The Kankakee supplies water sufficient to make a good slack-water navigation; the Desplaines of itself does not, and although the direction of the former was such that it was not probable that a favorable connection with Lake Michigan could be made through its channel, yet it was deemed advisable to determine that fact beyond cavil."

3763 Also on page 442:

"The Desplaines river rises in the State of Wisconsin and runs nearly due south, parallel with the lake shore, and generally not more than eight or ten miles from it, until it reaches a point about thirteen miles in a southwest direction from the mouth of the Chicago river. Here is a slight depression, a mile or more in width, extending across from the Desplaines to the south branch of the Chicago river, through which a part of the waters of the former river—in time of floods flow into the lake. In this depression is what was known once as Portage Lake (so designated on the old maps of the country), but now better known as Mud Lake, a succession of shallow ponds on the same level connected with each other and with the Desplaines river and extending about six miles towards Chicago river. This was the portage or carrying place between the waters of the lakes and the Mississippi made memorable by the early French voyageurs, and so well known to the four traders. But Portage or Mud Lake has ceased to exist, the shallow ponds having been drained, and the impassable swamps rendered valuable land.

There can be no doubt that through this depression there was once an outlet from the lakes to the Mississippi, which was closed by the recession of the waters of the lakes. Even now, at the present stage of Lake Michigan its surface is only between 8 and 9 feet below this summit. The Desplaines river, from the depression described, changes its course and runs in nearly a southwestern direction until it forms a junction with the Kankakee. The river itself, except in floods, is very shallow, being often reduced in dry seasons to a mere brook, discharging less than one thousand cubic feet of water per minute. But the valley averages a mile wide

and is terminated on both sides by well marked terraces which become higher and higher as they approach the Illinois. Evidence at every step presents itself that the water, when this was the great outlet of the lakes, extended from bluff to bluff."

3770 Also, from page 444, as follows:

"For half the distance between Lockport and Joliet, no advantage can be gained by any deviation from the present line, but some expense may be saved by a different adjustment of lockage on the enlarged canal.

Below this point three different lines were surveyed to the head of Lake Joliet, an expansion of the Desplaines river, two miles below the City of Joliet.

The first of these lines follows the present canal through Joliet, and the pools formed by the two dams across the Desplaines now in use would be occupied by the proposed improvement. These dams are built of stone upon a rock foundation, and, having stood more than twenty years without injury, may be regarded as sufficiently permanent. It will require considerable rock excavation under water to form a channel of sufficient width for the proposed improvement, and there will be considerable difficulty in obtaining the necessary room at and near the two dams without injury to the improved property, or that which is regarded as very valuable. A short distance below the lower dam for the proposed improvement would leave the present canal and be made as direct to the head of Lake Joliet as practicable."

There was also read in evidence, from the document "Annual Report of the Chief of Engineers, U. S. Army, part III, 1884," the title page being: "48 Congress, 2nd Session. House of Representatives. Ex. Doc. 1, pt. 2, Vol. II. Annual report of the Chief of Engineers, United States Army, to the Secretary of War, for the year 1884. In four parts. Part III. Washington: Government Printing House, 1884," and therein from page 1958, which is headed: "Survey of Illinois and Desplaines rivers, between La Salle and Joliet, Illinois," signed by W. H. H. Benyaurd, Major of Engineers, as follows:

"United States Engineer Office,
Chicago, March 5, 1884.

General:

I have the honor to present the following report upon the survey of the Desplaines and Illinois rivers from Joliet to La Salle, with estimates of cost of improvement, as provided for in the river and harbor act passed August 2, 1882.

The survey party, under the charge of Mr. George Y. Wisner, assistant engineer, was not sent into the field until the 1st of October, 1883, as it was deemed better to wait, and take advantage of the very lowest stage of water that could be found, not only as a matter of economy, but as affording the advantage of obtaining the fullest information when the rivers were in their worst condition, upon which state it was necessary to base the proper plan of improvement.

The survey was commenced at big Dam No. 1 on the Desplaines river, at Joliet, and continued to a point on the Illinois river near La Salle, where the Illinois and Michigan Canal enters the pool created by the lock and dam constructed by the state at Henry.

The rivers have an average width of about 600 feet, with banks from 8 to 23 feet in height above low water, so that within ordinary stages the stream flows within fixed banks. The oscillation between high and low water is about 15 feet, though a height of 23 feet has been recorded, occasioned by an ice gorge.

The fall in the low water surface between the points indicated above, a distance of 64.2 miles, is 100.25 feet. This fall is not, however, equally distributed over the entire distance, but occurs at various points, principally at the ripples, separating the different pools, and amounting in some cases to ten feet per mile.

It is evident, after consideration, that the only feasible plan to render the stream navigable is to slack water the entire distance. This can be accomplished by a construction of nine locks and dams, the cost of which depends upon whether the plan adopted shall be in conformity with that now in course of execution for the lower Illinois river, or whether the locks shall be of the size recommended for the Hennepin Canal. In addition to the requisite locks and dams, the plan also

contemplates the construction of a short canal at the falls of Joliet, and one at Marseilles. The location of the various structures and the two canals, were fixed upon, so that there should be no conflict between the United States and persons owning valuable manufacturing interests along the river, where water power is used."

Attached is the report of Mr. George Y. Wisner, assistant engineer, referred to in the document last read, signed in that name, addressed to Major W. H. H. Benyaurd, Corps of Engineers, headed:

"Report of Mr. George Y. Wisner, Assistant Engineer:

Chicago, Ill., February 22, 1884.

3774 Major: I have the honor to make the following report on the survey of the Desplaines and Illinois rivers from Joliet to La Salle, Ill., and to submit estimates of cost for improvement of the rivers by locks and dams, so as to give a minimum depth of 7 feet at low-water stages."

* * * * *

"The survey was commenced at Dam No. 1, on the Desplaines river, at Joliet, and continued to the mouth of the Illinois and Michigan Canal, on the Illinois river, at La Salle.

The fall of the low water surface from above Dam No. 1, to La Salle, a distance of 64.2 miles was found to be 100.25 feet. The greater portion of this fall, however, occurs in less than half the above distance, at the ripples separating the various pools, and which in some cases amount to 10 feet per mile.

The river for the entire distance flows either over a rock bed or a strata of earth of only a few feet thickness, overlying the rock formation.

With one exception, at Treat's Island, all the locks and dams may be established on rock foundations.

* * * * *

3775 It will also be seen from the accompanying maps that the river below the Adams dam is shallow, with channel obstructed with numerous small islands, and if improved by raising water surface by a dam at the head of Lake Joliet, the pool thus formed would, in all probability, soon fill up with deposits from the Illinois and Michigan

Canal, so that a navigable way could only be maintained by continual dredging.

Lake Joliet, however, is 5 miles long and 10 feet to 20 feet deep, and consequently, by commencing slack-water improvement at the head of this pool there will be little or no liability of the navigable channel becoming obstructed by deposits.

At the lower end of this pool Treat's Island, 4,500 feet long, is situated, past which the low-water plane of the river has a slope of 10 feet to the mile.

At the lower end of Treat's Island (6.3 miles below canal) Lock No. 3 is located, having a lift of 9.9 feet, and dam 350 feet in length. This lock will probably have to be built on a timber foundation. No borings were made, but the strata of sand and gravel overlying the rock formation probably does not exceed 12 feet in thickness.

Below Lock No. 3 a pool from four feet to 15 feet deep extends down to the mouth of the DuPage river (2 miles), below which is a ripple three-quarters of a mile long, having a low water slope of two feet per mile.

From this point the river is from 10 feet to 20 feet deep to within a short distance of the mouth of the Kankakee (three miles), the junction of which with the Desplaines forms the Illinois. At the mouth of the Kankakee the river flows over a rock bed, and for a distance of 1.7 miles has a low water slope of 4.4 feet per mile.

Lock No. 4 is located at the lower end of this ripple, having a lift of 8.8 feet, and dam 650 feet long."

COUNSEL FOR DEFENDANT. That is the site of the dam now under consideration in this case, and is the site of one of the supposed dams in this report.

There was also read in evidence on behalf of the defendant from "Sanitary District of Chicago. A concise report on its organization, resources, constructive work, methods and progress." "September, 1903. Prepared by the Chief Engineer," the preface being signed "I. R."

COUNSEL FOR DEFENDANT. There cannot be any question about who the Chief Engineer was. A list of officers is published on one of the pages, and it shows that Isham Randolph is the Chief Engineer.

There was read from said report, on page 12, as follows:

3778 "The Desplaines Valley is traversed by the river from which it takes its name—a stream of wide fluctuations with no constant and reliable fountain supply. During some seasons its whole discharge would pass through a six-inch pipe, and at others its volume reaches 800,000 cubic feet a minute. Then it rolls majestically along, flooding the whole valley. Such being the situation, control of this stream was a condition precedent to the successful prosecution of the work upon the Main Channel."

3779 There was also offered in evidence on behalf of the defendant, page 8, executive Document No. 264, House of Representatives, immediately following the list of all steamboats of more than 50 tons register navigating the Mississippi river, etc., as supplementing and as a part of the exhibit previously offered by the complainant of pages 6, 7 and 8 of said report, and which is as follows:

"The act of Congress in question, requiring plans and estimates for a channel at least 14 feet deep and at least 160 feet in width, has been complied with, and estimates on this basis are also submitted. This channel will accommodate, of course, with greater facility, large vessels that can reach its terminus at La Salle through the channel of the Mississippi river, at present about four and one-half feet in depth at low water, to be increased if practicable to 8 feet at low water below St. Louis, and to 6 feet on the Upper Mississippi and through the lower Illinois river, at present from 16 to 18 inches in depth on the unimproved section, to be ultimately seven feet deep at extreme low water, with locks 350 feet in length and 75 feet in width of lock chamber. No vessels now existing on the Mississippi river that cannot be accommodated by the 8 feet deep channel at extreme low water will be accommodated by the 14-foot channel 160 feet wide, but every increase in depth up to a certain limit of a navigable waterway increases the facility with which it can be navigated by large vessels; a channel from 14 feet in depth at extreme low water in Lake Michigan to 18 feet at high water across the Chicago divide; can be navigated by similar large boats if still water, or with a very moderate current, with greater facility and ease

than a still-water channel from 8 to 12 feet in depth. This is the best argument for such a channel, based upon the present or probable future navigation of the Mississippi river and its tributaries; it is not a public necessity.

As for the practicability of such a channel under the condition imposed by the act that it shall occupy the bed of the Illinois and Desplaines rivers, more will be said hereafter in this report.

Artificial waterways connecting superior navigations, even, are generally restricted and obstructive, and limited by motives of economy to the least dimensions that will accommodate the vessels that will probably seek their use. For this reason, probably, no channel has been recommended by any engineer under governmental or state authority, exceeding 8 feet in depth across the Chicago divide.

The strongest presentation of the necessity for a minimum channel 14 feet in depth from Lake Michigan to the Mississippi river, at the mouth of the Illinois river, is given by the chief engineer, of the Chicago Sanitary District, lately organized under the act of the Illinois legislature, approved May 29, 1889, entitled 'An act to create Sanitary districts and to remove obstructions in the Desplaines and Illinois rivers,' in an article published in the Chicago Tribune dated January 29, 1890. It is given here because the author represents the only interests demanding a large channel, and presumably offers the most cogent arguments available for governmental action.

Criticising the statements contained in the annual report of the Chief of Engineers for 1889, page 2130, *et seq.*, he says:

(The italics are mine, not appearing in the article in question.)"

* * * * *

3782 "The government is now engaged upon an improvement which will *secure* 10 feet at all stages below Cairo and 8 feet from St. Louis to Cairo. Certainly *if* it secures 10 feet to Cairo, this will extend to St. Louis, as suggested by the Mississippi River Commission. We may be sure that this minimum depth will *sometime* be obtained to St. Louis, and that *when it is*, the ordinary

boating stage will be as much in excess as now, or not less than 14 feet to St. Louis."

* * * * * *

"*If these depths were maintained,* no one questions that the utility of greater depth would be apparent and would be undertaken. * * *

If, however, a minimum depth of 10 feet *is to be secured* to St. Louis, it is *certainly practicable* to carry it over the same river, precisely to the mouth of the Missouri, 16 miles above, and then *only* 24 *miles intervenes to the mouth of the Illinois.*

No one will contend that this depth cannot be had over this 24 miles, *if* there is any wise purpose to be subserved, as there would be.

And here the gentleman leaps to Lake Michigan, seeking the mother of invention to help him over that 24 miles, and begs the entire question before he can get further with his 10-foot improvement.

If we can carry fourteen foot from Lake Michigan to the Mississippi.

If the government can improve 1,000 miles of river below St. Louis, we need not be balked by 40 miles above to the mouth of the Illinois.

If the improvement below St. Louis is made on the basis of 8 feet.

It is progressing slowly and laboriously on the basis of eight feet, *then,* we need 14 feet from the Illinois to Lake Michigan to meet that work, because the lower water stage on the Illinois is long continued.

He does not say how it is with the low water on the Upper Mississippi, subject to nearly the same climatic conditions, and we would only have a canal and slackwater navigation subject to an oscillation of from four to 20 or more feet, from Chicago to La Salle, with little variation in depth.

The significance of the '*ifs*' and '*whens*' may be made apparent in part by stating that the first 'if' presupposes the expenditure as originally estimated by the Mississippi River Commission of not less than $33,000,000 to secure 10 feet minimum depth below Cairo, which estimate has not been repeated in later reports, and might probably be modified by their experience. Whether the Government will '*secure*' 10 feet below Cairo is yet problematical. The Mississippi River Com-

mission have satisfactory reasons for reporting that they have solved the question of the possibility of obtaining that depth, but its realization is distant. The possibility of *securing* that depth is not so clear. No one knows how many years or centuries of time, or dollars it will require, under appropriations irregularly made, to obtain the depth of 10 feet, or to maintain or secure the depth after obtaining it.

No estimate has yet been made of the cost of fulfilling the requirements of the second, 'if,' *i. e.*, to '*secure*' ten feet minimum depth to St. Louis; $17,000,000, approximately total expenditure, is estimated to get 8 feet from St. Louis to Cairo. The consummation of this 8-foot project is not yet in sight, though favorably progressing. What it will cost to get and '*secure*' or even maintain by continued labor the additional two feet in that region of moving sands no one knows.

The same remarks apply to the third 'if' in the progress towards the mouth of the Illinois. No estimates have been made to carry 10 feet to the mouth of the Missouri, nor to the mouth of the Illinois, nor 14 feet of the Illinois to La Salle, but for 14 feet from La Salle to Lake Michigan an estimate is herewith of more than $48,000,000.

The definite estimates, then, so far submitted foot up nearly $100,000,000 and leave us, granting estimates correst and the work done and 'secured' at St. Louis with 8 feet minimum draught below the city, and not exceeding 5 feet minimum depth above La Salle.

It is evident, therefore, accepting the gentleman's conclusions which do not necessarily follow, even from his hypotheses, that the necessity for the 14-foot channel is not urgent, and as far as navigation is concerned can wait, pending further consideration, without injury to public interests. All mechanical constructions would decay, if built now, before their full use would be available, awaiting the realization of the conditions expressed by the 'ifs' and 'whens' if built of the stone accessible to this line.

He concludes his argument—

* * * * *

No one in Chicago or in the Illinois Valley is interested in a 7-foot navigation. That is passing away after the stagecoach and plank road.

Eight feet minimum is proposed across Chicago divide, rising to from 10 to 12 feet across the divide, and to 20 feet in the rivers, with the oscillation of lakes and rivers. Less than 7 feet navigation exists on the Mississippi river to-day, and upon all its branches and navigable tributaries, and upon every non-tidal river, probably on the globe, not slack-watered or canalized around obstructions, and on nearly every canal on the globe not connecting tidal or deep waters.

All commerce by means of non-tidal waters (excluding inland lakes and seas) of the world, except an insignificant percentage, is effected on boats and barges of 7 feet or less draught of water, and interest in a 7-foot navigation will cease in Chicago when the Erie canal no longer exists, and generally when all rivers and canals, as well as men, are thoroughly regenerated."

There was also read in evidence from the report of the War Department, 1900, Chief of Engineers, Part V. Title page "Annual Reports of the War Department for the fiscal year ending June 30, 1900. Report of the Chief of Engineers. Part V, from the report of the Board of Engineers, signed "J. W. Barlow, Colonel, Corps of Engineers, etc., a report on the survey of the Upper Illinois and Lower Desplaines, beginning on page 3857, as follows:

3787 "General: The Board of Engineers, officers, constituted by paragraph I special orders No. 14, headquarters Corps of Engineers, U. S. A., March 12, 1899, to make a survey and estimate of cost for the improvement of the Upper Illinois river and Lower Desplaines river, with a view to the extension of navigation from the Illinois river to Lake Michigan at or near Chicago, met at the United States Engineer office, Chicago, Illinois, April 10 and 11, 1899."

Also from page 3859:

"If the route by the Chicago river and Drainage Canal be adopted, there remains but little more than half of the work involved in the eight-foot project of 1890, for the Government now to take in hand in order to complete the improvement, since the estimated cost of this portion of the channel (about 28 miles) was nearly $14,000,000. By the Calumet and Sag route only about 10½ miles of the Drainage Canal can be utilized.

But while the Drainage Canal covers about half of the

work involved in the project by way of Chicago river, it at the same time has turned an additional flow into the Desplaines river, materially changing its low-water regimen. The requirements of this flow at present are 5,000 cubic feet per second, while the limit of ten thousand is probably more nearly the flow that will have to be dealt with, at least not long after the completion of the present project. As nearly as can be estimated, this flow gives a water line indicated upon the accompanying profile and the contrast is shown with the low-water conditions hitherto existing. The steep slope shown on the profile indicates that with so large a volume of discharge the velocity of the current would be too great for up-stream navigation in an open river. This might be overcome to a great extent by canalizing the river by high dams entailing great expenditures for the necessary works, as well as for the purchase of lands overflowed, the cost of which cannot even be approximated from present information."

Also at the foot of the page, the last paragraph:

"At the Marseilles Rapids, a canal about 7.4 miles in length is required to overcome the steep slope there encountered, and it is proposed to make the section not less than 160 feet wide at bottom, and ten feet deep in order to correspond to an eight-foot navigation in the river channel at low water. * * *

The Marseilles Canal, beginning at the head of the Utica reach, will have two locks, each with a lift of 15 feet at an estimated cost of $460,000; a guard lock and a dam at the head, estimated at $300,000, and 7.4 miles of canal, estimated at $1,052,500. From the head of the canal the route will follow the channel of the river to a point below and near the mouth of the Kankakee. Similar conditions with respect to depth and velocity of current will be met in this stretch as in that between Utica and Marseilles, and an estimate for both excavation and bank revetment is provided. From the head of this section a canal is necessary to reach the Joliet Basin, with locks to overcome a fall of 54 feet at low water in a distance of 17 miles, provision also being necessary for fluctuations of level at the upper lock. The estimates of the board are based upon overcoming this difference of elevation by fire locks, but further study may result in a reduction of the number."

There was also read from the volume "Book of Reports of the War Department, 1901. Chief of Engineers, Part 4," the title page being "Annual Reports of the War Department for the Fiscal year ending June 30, 1901. Report of Chief of Engineers, Part 4"—and from the same the report of Major Willard and Col. Barlow and Major Townsend, to Brig. Gen. John M. Wilson, dated November 18, 1900, the opening sentence reading:

3790 "Chicago, Ill., November 18, 1900.

General:

The River and Harbor Act approved June 6, 1900, provides:

That the Board of three engineers appointed by the Secretary of War, in pursuance of a paragraph in the river and harbor act approved March 3, 1899, to make a survey and estimates of cost of the improvement on the Upper Illinois river and the Lower Desplaines river in Illinois, with a view to the extension of navigation on from the Illinois river to Lake Michigan at or near the City of Chicago, is hereby authorized to report," etc.

Also from page 3061, there was read as follows:

"While the Upper Illinois and Desplaines rivers are at present non-navigable, the commerce of the Illinois and Michigan Canal, which has been constructed in the valleys of these rivers may be taken to represent the present commerce of such a route. The tonnage carried on the Illinois and Michigan Canal since 1860, derived from the reports of the Board of Trade of Chicago, is also appended."

Also, from the same volume, there was read in evidence a report of the Board of Engineers, page 3,049, signed by Barlow, Willard and Townsend, and addressed to John M. Wilson, Chief of Engineers, dated November 17, 1900, beginning:

"General:—The Board of Engineer Officers constituted * * * to make 'a survey and estimates of cost for the improvement of the Upper Illinois river and Lower Desplaines river, in Illinois, with a view to the extension of navigation from the Illinois river to Lake Michigan, at or near Chicago,'" as follows:

Page 3050:

3791 "The Board finds the most economic route for waterways of seven feet and eight feet depth to be from Utica to Marseilles in the bed of the river, 11.4 miles; then

around the Marseilles Rapids by canal, 7.4 miles; thence in the bed of the river to near the mouth of Kankakee river, 21.2 miles; thence by enlarging the Illinois and Michigan Canal to the Joliet Basin, 18.3 miles; thence by canal through Joliet Basin and along the east bank of the Desplaines river, 4½ miles, connected with the Sanitary Canal at Lockport, and thence through the Sanitary Canal and the Chicago river to Lake Michigan, thus complying with the terms of the act of March 3, 1899."

There was also read from House Document No. 263, heretofore referred to by counsel for the complainants, as follows:

Page 7 (for the purpose of identifying a party hereafter to be a witness for the defendant):

"For details of the methods employed and the results accomplished in the actual work of the survey, attention is invited to the report of Assistant Engineer J. W. Woerman, which is hereto appended."

3792 On page 9, "Chicago Drainage Canal" there was read:

"Besides being a highway of commerce the Illinois and Michigan Canal has from the beginning served to carry off the sewage of Chicago. The Chicago river has always been the main receptacle of the sewage of the city, and as the volume of sewage has increased with the growth of the city additional facilities for discharging it into the canal have become necessary. When the canal was opened in 1848 a pumping plant was established at Bridgeport where it joins the Chicago river. In 1860 the capacity of this plant was nearly doubled, being increased to about 400 cubic feet per second. Later on the summit level of the canal was cut down so as to provide a continuous gravity flow from the Chicago river and Lake Michigan. That work was completed in 1871 and the pumping plant abandoned. In 1883 a new pumping plant was brought into use, having a nominal capacity of 750 cubic feet per second, but it soon became evident that the discharge capacity of the old canal was quite inadequate to carry the volume of water required to dilute the sewage, and that a new and greatly enlarged channel must be provided. The Chicago Drainage Canal was then constructed and was brought into use in January, 1900. It has not yet been completed to its full capacity as designed. When fully completed, it will have

a capacity of 10,000 cubic feet per second, flowing at a low velocity."

Also, on page 12, under the head "Vested Rights."

"The steep slope of the Desplaines river and of the Illinois river above Utica is favorable to the development of water power. Rights of this nature have acquired additional importance with the recent increase in the discharge of the Drainage Canal, and will acquire still further importance with the further increase contemplated. An important water power has been developed by the State of Illinois at Joliet, and is now in use under lease by a private corporation. The Sanitary District of Chicago is engaged in the construction of works for the development of water power just above Joliet, an important water power is in use also at Marseilles.

3794 Various other schemes for the development of water power have been projected. In all such cases fixed dams with their resultant back flowage are a necessity. In fixing the location and height of its dams, the board has endeavored to avoid the injury of any of these schemes. It has succeeded in doing this for all that are developed, and probably also for those that are undeveloped. It has accepted the levels of the pools at and above Joliet as fixed by the dam now in existence at the former and and that under construction at the latter; and at Marseilles the canal around the rapids has enabled it to avoid the power dam at that place entirely. At other places economy in excavation and avoidance of overflow have been the guiding considerations. The best development of water power would no doubt, in some cases, call for a different arrangement. Fewer dams and those of a greater height and of the fixed type might, from that point of view, be desirable.

The plan submitted is not designed to develop water power; but there will probably be no difficulty in modifying it so as to conform to such development, if those who are to benefit thereby will co-operate with the government. They should pay the cost of the dams and the damages from flowage which is no more than they would be compelled to do if the Government made no improvement."

3987 There was also offered in evidence on behalf of the defendant from the Senate Journal of Illinois, for 1836 and 1837, from the documentary history of the Illinois and Michigan Canal the following (pp. 273, 274):

3988 "Monday, January 23, 1837.

Mr. Thomas, from committee on canals and canal lands, reported following facts in relation to subject-matter of the bill:

Five persons were appointed a Board of Commissioners, to adopt measures requisite to effect communication by canal and locks between the navigable waters of the Illinois river and Lake Michigan, and were authorized to employ an engineer and such other persons as might be necessary to discharge the duties imposed upon them.

They were also authorized to cause that part of the territory of the state which may lie upon or contiguous to the probable courses and ranges of said canal, to be explored and examined for the purpose of fixing and determining the most eligible and proper route for the same; and to cause all necessary surveys and levels to be taken, and accurate maps filed, and books and drafts thereof to be made.

They were also required to make a report to the next session of the general assembly, or to an extra session: Provided, the governor should commence the same under the power here granted.

The board employed Justus Post and Rene Paul as engineers, who made an experimental survey and estimates of cost, etc.

Post was paid for his services; Paul was not. The question is now presented—shall he be paid?

The fact that he was employed and devoted his time to the service of the state, appears from the report of the Canal Commissioners made to the General Assembly in 1825.

The time of his employment has been proven to be 120 days—the amount claimed is $4.00 per day. To the committee, the question is plain that the claim ought to be allowed."

Counsel for Complainant. The balance of that report would occupy a page and a half. I ask that the whole report go in with the letter. It is simply the letter of Thomas

(chairman of the committee on canals of the senate) and the reply of Bucklin, and the committee's report.

COUNSEL FOR DEFENDANT. The part that I read from is page 136, part of the proceedings, part of the report of the committee on canal and canal lands, which was reported to the Governor (Report of Canal Commissioners of Illinois to Governor John R. Tanner of December 1, 1900), transmitting annual reports made on the 25th of February, 1837 (reading):

Page 137:

3992 "The magnitude of the work and the difficulties attending its execution have been long known and considered. The representatives of the people did not engage in the work without due consideration of those difficulties. The interest which the nation has taken in the project is evidenced by the act of congress changing the northern boundary line of the state by the purchase from the Indians of a strip of territory extending from the Illinois to the lake, with an eye single to this project, by the act of congress granting right of way to the state, and by the subsequent act granting lands of value sufficient to defray the whole cost of the work."

Also:

3993 "The surface of the canal as at present proposed to be constructed, is 60 feet, and bears the proportion of one and one-half to one to the surface of the canal as at first proposed. The depth of water is now six feet, whereas it was formerly four feet, consequently, the pressure of water being as the squares of the heights, and the leakage nearly as the square roots of the heights, the pressure will be more than doubled, and the leakage (taking into calculation the great surface), increased in proportion to one and a half to one. The quantity of water then that will be required to supply the evaporation and leakage in a canal of the dimensions proposed, will be 150 cubic feet per minute per mile; and with reference to the peculiar character of the country through which the canal passes. I know of nothing which would justify a departure from the established rule, in regulating the supply of water. It is true, the upper level is situated in a very wet country, but the levels below dependent upon the summit for water, are located on ground very badly calculated to retain it, and it is possible that more than the ordinary supply may be required.

If the project of supplying the canal from Lake Michigan be abandoned, and the high levels resorted to, the length of canal including feeders, to be supplied with water on the upper level is 56 miles, which will require 8,407 cubic feet per minute to supply the evaporation and leakage, and a further supply of 2,112 for lockage, making in all a minimum supply of 10,512 cubic feet per minute.

Very respectfully,
Your obedient servant,
J. M. BUCKLIN."

3995 "Aside from the fact that according to the most authentic information, the Calamic and Desplaines do not afford sufficient water for the use of the canal, it is an admitted fact that the Calamic takes its rise in Indiana. From the latest maps it appears to bend through the corner of Illinois and pass into the lake near the state line. It is contended by some that it formerly passed into the lake in Indiana; it is, however, certain that the State of Indiana may use the water of the river to the exclusion of Illinois. The committee are not advised of any improvement projected by the State of Indiana requiring the use of the river. But the testimony of Lieutenant Burnett herewith submitted, although not conclusive, tends strongly to prove that a company, incorporated by the State of Indiana have projected a canal, which will require the use of at least a half of the water of that stream.

Upon the point now under consideration, the committee have arrived at the following conclusions:

First, that the Calamic and Desplaines do not afford sufficient water for the use of the canal.

Second. That if they did, it would not be prudent or safe to rely upon the Calamic.

In arriving at these conclusions, the committee have relied upon the evidence referred to, consisting of extracts from reports and other authentic documents. It must be evident to all those who have given the subject any examination, that the point on the Calamic where it is proposed to take the water, is below the summit of the canal line, and only 2 feet 81-100 above the level of the lake. The erection of a dam across the Calamic would, therefore, be absolutely necessary, the effects and consequences of which cannot with certainty be

calculated or ascertained. One effect would doubtless be the overflowing of an immense tract of country and a subsequent loss of water by evaporation, absorption, etc.

Your committee will now proceed to the examination of the second and third reasons assigned why a change should be made in the summit division of the canal, viz.: the length of time required and the difficulty and cost of construction. These are reasons which have often been urged and acted upon by those who have opposed to the policy of the state's undertaking so stupendous a work; but the judgment of the people has long since been pronounced against their sufficiency. Your committee will not pretend but that there are many difficulties to be encountered in the prosecution of the work, and that from five to eight years may be required for its completion. Having arrived at the same conclusion with all others who have examined the subject (except the committee of the house) that in order to construct such a canal as the nation has a right to expect, the waters of the lake must be used. The question naturally recurs, shall the state persevere in the work, or shall the project be abandoned? These are the real questions to be considered in answering the reasons assigned for the proposed change; and as these questions are general and applicable to the whole line of the work, their consideration will be deferred until the second proposition, for a change is considered and disposed of.

The second reason urged, viz.: that the cost of the improvement will be greatly diminished, will not be controverted, but of the value of that improvement compared with the value of the canal and the comparative advantages of the two descriptions of improvements, have not been discussed in the report.

It is a work national in its character, and the people of Illinois should rejoice at the opportunity offered of being instrumental in executing a work of such vast magnitude and importance. The eyes of the civilized world are resting upon us with intense interest, for our success in a work which promises such extensive and incalculable advantages to these United States. The people of the United States are looking to the completion of this work, as forming the last link in an endless chain which shall

forever hold these United States in the bonds and pledges of Union, and your committee ask in the name of the civilized world, in the name of the people of the United States, and in the name of Illinois, that no local, sectional or private interest be consulted in the decision about to be made.

The magnitude of the work, and the difficulties attending its execution have long been known and considered. The representatives of the people did not engage in the work without due consideration of those difficulties. The interest which the nation has taken in this project is evidenced by the Act of Congress changing the northern boundary line of the state by purchase from the Indians of a strip of territory extending from the Illinois to the lake with an eye single to this project, by the Act of Congress granting right of way to the state, and by the subsequent act granting land of value sufficient to defray the whole cost of the work. It has always been regarded as a national work, and the nation having furnished the means for its execution, have a right to expect that the work shall be projected and executed in a manner suited to the character and views of an united and enlightened people. The fund for this purpose is admitted on all hands to be ample, and no citizen of Illinois ought to be willing to see the faith of the state violated, public expectation disappointed and the beneficence of the national government abused by authorizing any other description of work.

The question may be confidently asked—why should anyone desire to disappoint the hopes and expectations of the nation in regard to the character of this work? Can it be supposed that the nation would have extended assistance by so large and extensive a grant of lands toward the execution of a project purely local, a project which at best would not accommodate the trade of Illinois alone five years hence.

To engage in such a project would be sporting with the bounty of the nation and degrading to the character of the state. Who among us would be willing to stand forth before an enlightened, liberal and magnanimous nation, and proclaim the sentiment; the nation has furnished us with means to execute a great national work, and although by accepting those means, we stand pledged to use them for the purpose intended, yet as the work

of a totally different and greatly inferior character, can be executed for one-half the amount furnished, we will make such a work and vest the other half of those means in bank stock or in improvements of a character purely local. If there be among us any who would be willing to assume such an attitude, and in the face of the world proclaim such a sentiment, it is to be hoped, for the honor of the people and dignity of the state, none such can be found in the walls of the legislature. Such a sentiment strikes at the very foundation of the public faith, and if acted upon would lead a total subversion and overthrow of our free institutions. The proposition is too monstrous and involves consequences too disastrous to be entertained for a moment; and your committee will not act upon the presumption, nor indulge the idea that any citizen of Illinois will ever be found giving countenance to such a sentiment.

Your committee are satisfied that the canal lands will defray all expenditures required in the construction of the canal, upon the enlarged plan proposed by the Canal Commissioners, and they hope to see the time when its navigation will be made free to all the people of these United States.

There should be no question asked in regard to a supply of water from any other source than the lake, so long as it is known that the means furnished by the nation are simply sufficient to execute the work. In the completion of such a project, computations of time should be made with reference to the existence of the union, and not with reference to the growth of a village. If, contrary to all calculations, eight or fifteen years shall be required for its completion, this would not justify the state or the people in a violation of their plighted faith. The time is not distant when Illinois must stand at the head and in the front of all the western states, and when that time shall arrive, that nothing could be a source of greater mortification to her citizens or her sisters, than a knowledge that in her infancy, she had been guilty of a violation of public faith.

Your committee are of the opinion that a lateral canal connecting the waters of the Illinois and Michigan Canal with the waters of the Calamic, is practicable, and will probably be required at some future time. Before any expenditure of money is authorized for that purpose,

the consent of the State of Indiana should be obtained to the use of the water of that stream, and an agreement irrevocable, except by the consent of both states, should be entered into, fixing the terms upon which the water may be used, and the terms upon which the citizens of Illinois shall be allowed to navigate said river.

Your committee highly approve the decision of the commissioners fixing the size and dimensions of the canal, and they cannot but remark, that nothing but the greatest industry and attention to their duties could have enabled the commissioners to have made such progress in the prosecution of the work.

It appears from the report of the commissioners that no addition will be required to the canal fund during the present year, but that provision must be made for the year 1838. For this purpose, it is proposed to sell alternate lots in the town at the termination of the canal, and other towns along the line, to the amount of $1,000,000, and to authorize a further loan of $500,000 in the event of that amount being required.

In the present state of things it is deemed bad policy to bring into market any of the canal lands. It is believed that under the provisions of an Act passed during the present session, those lands can be protected against all further depredations. To carry out the views of the committee, they report a bill, and recommend its passage."

4003 Also, on page 210:

"Previous to 1816 the United Tribes of Indians known as Ottawas, Chippewas and Pottawattomies, claimed all the land between Chicago and the mouth of the Fox River. In order to secure undisputed possession of the river between these two points, a treaty was arranged between these tribes and Ninian Edwards, William Clark and August Chonteau, commissioners plenipotentiary of the United States; this treaty was consummated the 24th day of August, 1816, and was signed by the above named commissioners and F. Assikinock, otherwise known as Black Partridge, chief of the United Tribes. The object in securing this strip was to construct a military road to facilitate the building of the proposed ship canal."

Also, on the preceding page, from Woodruff's History of Will County:

"The project of a ship canal to connect the waters of Lake Michigan with the navigable waters of the Illinois River was first suggested during the war of 1812, by some writer in the Niles Register in 1816. The title to a strip 20 miles wide was obtained of the Indians with a view to such work."

Also, from page 269 of the report of E. W. Willard, land agent, in the same volume, referring to the Indian question, there was read as follows:

4006 "In the various histories of Illinois there has been little said of the Illinois and Michigan Canal. The work was national in its character and its progress was observed with intense interest throughout all the states. The interest which the general government had taken in the project is evidenced by the Act of Congress changing the northern boundary lines of the state, by purchasing from the Indians a strip of territory extending from the Illinois River to Lake Michigan—by the Act of Congress of 1822, granting the right of way to the state, and the act of 1827 granting land to defray the cost of construction."

4007 Pages 204 and 205 from the report of William Gooding, chief engineer of the canal, dated canal office, Lockport, December 15, 1842, showing gauge readings, introduced in evidence.

The report shows "Gauges of Calumet River by U. S. engineers—17,281 per minute. By Bucklin, 5,333 per minute.

S. Desplaines river, Post & Paul, 1950, by Bucklin, 1,000 per min.

S. DuPage river, U. S. Engineers, 1665, by Bucklin 6916 per min.

The aggregate minimum discharge of the three rivers would be thus shown:

4008 Calumet 5,333, Desplaines 1,000, DuPage 1,655=7,998 cubic feet per minute. This quantity of water was to supply filtration and evaporation of 74 miles of canal, necessary lockage water and loss at dams and upon Calumet feeder. It is, therefore, obvious that there would have been barely a supply for a canal of ordinary dimensions, admitting that the water could have been introduced (as it might have been) at the points desired.

Quantity of water in all these streams continues to diminish till the 1st of November, when the total would be about
4009 7,300 cubic feet per minute for all three rivers. The water necessary to supply the canal from Chicago to Marseilles is 9,924 cubic feet per minute, or a deficiency of 2,624 cubic feet per minute. There would be some loss at the dam at the Calumet, upon three or four miles of the feeder, and also at the DuPage dam. It would be safe to calculate, however, that there could be introduced into the canal from these three rivers 6,300 cubic feet per minute. The total supply needed is 9,924 or a deficiency of 3,624 cubic feet per minute.

The report states that the engineer's remark in relation to these gauges that the results are predicated upon the present stage of water, and that the quantities may sometimes be lower.

4012 The defendant here introduced certified copies of certain records of the Will County, Illinois Circuit Court, in the case of *James McKee* v. *The Board of Canal Com-*
4019 *missioners of the Illinois & Michigan Canal,* the final order of said Circuit Court providing "that the said James McKee is entitled to damages for his land, mill site water and water privileges taken from him by the defendants for the construction of the Illinois and Michigan Canal; and the said Court do assess the damages of the said James McKee on occasion of the premises at the sum of seventeen thousand six hundred and fifty dollars upon his releasing to
4023 the commissioners the land taken." Deed of James McKee and Sally McKee, his wife, in conformity with the said decree.

4030 Certificate of recording of said deed.

4408 Thereupon counsel for defendant at request of counsel for complainant pursuant to stipulation heretofore agreed upon, read in evidence from page 40 of the report of 1890 (House Doc. No. 264. 51st Cong., 1st Sess., p. 40), in connection with the passage and read by counsel for defendant from said book and page:

4410 "Starting from Bridgeport, the Illinois and Michigan Canal was constructed in a straight line to the Desplaines Valley at Summit. As originally constructed, the canal had a summit level, a lock having been built at Bridgeport and one at one-half mile south of Romeo,

this summit level being supplied originally by the Calumet feeder.

The drainage area of the Chicago River is about 270 miles, and the natural dry weather flow practically nothing. The sewage of the city is discharged mainly to the river and it early became necessary to provide some means of getting rid of it other than permitting it to escape to the lake when the flow was sufficient to carry it there. For a while pumps were operated at Bridgeport which pumped the water and sewage into the summit level of the canal. Subsequently the city deepened the canal to six feet below low water of 1847 in Lake Michigan which is Chicago City datum. This gave only temporary relief. The low water surface of the Desplaines River at Summit is eight feet above Chicago datum, and high water rises seven feet higher. The canal does not enter the bed of the river, except at one place where the river was diverted for the purpose, but
4411 run along the eastern bank of the river, the water of the river being prevented from coming into the canal by the spoil banks.

The material in which the canal was excavated varies from clay at Bridgeport to gravel and boulders at Willow Springs. The surface of the ground varies from eight to fourteen feet above Chicago datum. In many places under the headwater in the river and the drainage of the adjacent lands, the narrow deep cut was unable to maintain the slope of its sides, which are said to have been cut at the slope of one to one, and soon the canal became obstructed by the falling of its banks, and the flow was insufficient to carry off and properly dilute the sewage. The flow from the lake was also diminished by the water which came from the river through the permeable soil, and by the natural drainage on the east side of the canal.

Pumping works and a lock were then constructed at Bridgeport, and water pumped from the river into the canal. The lift of the rocks vary from one to three feet. The capacity of these pumps is said to be 1,000 cubic feet per second and the amount pumped is from about one-half to three-fourths that quantity. This produces a feeble current up the south branch from the north branch, and the lake when the natural flow and sewage
4412 combined does not exceed the capacity of the pumps.

The south fork, however, is left in an indescribable condition of filth and offensiveness. The west fork originally did not extend beyond Kedzie avenue, but by that construction of ditches and other causes it may now be said to have its source in the Desplaines River near Summit. The upper part of its course is known as the Ogden ditch. The ground along the west fork is generally lower than along the canal, the low ground along part of its course being known as Mud Lake Valley. The Mud Lake Valley was originally separated from the Desplaines River by a low bank raised probably by the river itself. This bank was cut and the city has since been engaged in an effort to prevent the water of the Desplaines River coming down the west fork and carrying the sewage into the lake.

A dam, known as the Ogden Dam, has been built near Summit across the Ogden ditch, where it leaves the Desplaines River, the crest being about 11 feet above city datum. The floods come over the dam, and over the adjacent banks, and flow out to the lake through the Chicago River, carrying with it accumulated sewage which the feeble current created by the pumps have not been able to remove. The canal drains the country south and east of it, and when the amount of storm water is large it overtops the lock gates at Bridgeport, which
4413 are then opened and the flood flows out to the lake through the river. The City of Chicago takes its water supply from Lake Michigan near the mouth of the Chicago river, and the purity of the water supply is threatened by the sewage carried into the lake. The city is now proposing to dig a large drainage canal along the Chicago route for the purpose of carrying its sewage down the Desplaines and Illinois rivers.

The proposed waterway between Bridgeport and Summit could follow the line of the present canal, the west fork and Ogden ditch, on a line intermediate between the two, but it is necessary to take into account the local conditions and to provide for preventing the waters of Desplaines river going to Lake Michigan through the Chicago or Calumet rivers carrying with them the sewage of the City of Chicago.

From Summit to Sag bridge the proposed route follows the valley of the Desplaines river, which is from one-half to three-fourths of a mile wide, entering the

bed of the river about three miles below Summit. The river from Summit to below Sag bridge varies greatly in width and depth. This portion of the river is known as the 12-mile level. The low water flow of the river above Summit is very small, and the maximum measured high water discharge about 10,000 cubic feet per second. At low water the entire flow passes in part through the Ogden ditch, but the greater portion into the canal through the permeable soil separating them."

Counsel for defendant then offered the report of the Canal Trustees, title page:

"Complete list of the lots and lands conveyed by the trustees of the Illinois and Michigan Canal, showing size of lots, appraisal sales, from September, 1848, to May, 1849, names of purchasers, etc., compiled by our Board, February 15, 1850, Chicago, printed at the Democrat office, 45 La Salle street, steam presses, 1850."

And on page 5, Roman letters, if it were paged; it is the first page after the table of contents, down to sales made by trustees, that would be the 5, Roman page, on down to sales made by trustees, on the sixth Roman page.

4479 Thereupon the court heard argument upon the admissibility of the portion of the book so offered.

COUNSEL FOR DEFENDANT. The first page refers to sections of the Act of 1843, and speaks of the conditions under which the trustees are to sell and convey the property. I also offer on page 7, Roman figures, "Chicago," for the purpose of showing that at the date of the publication of this book there was still considerable land in odd sections remaining unsold in the City of Chicago.

I will state that I expect to show further that a considerable number of these lots, were lots upon the Chicago river, and vicinity that were sold after 1839, and no reservation made, unless it be in the statute itself, of any part of the river bed itself.

COUNSEL FOR COMPLAINANT. I object to it as irrelevant, incompetent and immaterial.

Said portion of said document was received and read in evidence as follows:

4481 "CHICAGO:

The whole number of lots, and out-lots in Chicago and vicinity, prepared for sale by the trustees, was 1478;

and the valuation thereof $627,528. Of these lots 998 have been sold; and there remain unsold 579; of which 230 are at present held for sale by injunction;—embracing now all unsold in blocks 4 and 7, original town, and section 1721 and 29 E. 39, R. 14, East.

In the immediate vicinity of the railroads, there is still unsold a large number of very eligible lots; and in the lower part of fractional section 15, quite a quantity equally desirable, so that it may be seen that the property in and about Chicago hereafter to be sold is of the most valuable and attractive character, whether it be wanted for occupational or permanent investment."

COUNSEL FOR DEFENDANT. Joliet, a similar paragraph on page 9, about this town of Joliet

"JOLIET:

About this town, the trustees prepared 456 lots for sale, which were appraised at $10,885. Of this number 242 have been sold, leaving unsold 214, all of which are very well situated, and worth greatly more than the appraisal."

COUNSEL FOR COMPLAINANT. Objection that it is irrelevant, incompetent and immaterial.

Page 12:

"LANDS.

The Canal Lands, it is well known, include the odd numbered sections embraced in a strip averaging about ten miles in width, lying on both sides of the canal, and extending from the commencement of Lake Michigan to its termination on the Illinois river; a distance of nearly 100 miles. They also include, as far as they continue, the rich valleys of the Desplaines and Illinois
4483 rivers, and the heavy bodies of timbers along their borders. In point of location, health, fertility and adaptation to general farming purposes, these lands are certainly unsurpassed by any of the west.

Unlike most prairie districts, they are generally well supplied with timber and water; and throughout the westerly half, coal abounds in a characteristic quantity. Water power is likewise abundant, as well as lime and sandstone of good and useful quantity. All told, there are some 173,000 acres and in this quantity more than 30,000 acres is very good timber, which, for the ac-

commodation of farmers will hereafter be offered for sale in forties.

The land is situated in Cook, Will, Grundy and La Salle Counties, and occupies the central and more valuable parts.

Cook County contains much the largest population of any in the state, and Will and La Salle are among the most populous and wealthy, while Grundy, in agricultural resources, is inferior to none. Nowhere in the west has farming industry been better repaid, or business enterprise of every kind been more amply rewarded.

The Illinois and Michigan Canal, passing nearly through the center of this tract of land, is one of the largest, most substantial, and splendid works of the
4484 age. It completes and furnishes the most important connecting link in the great circuit of the boundless inland commerce of our country. It has been in operation but two seasons, and its effect upon the value of produce and property, and all the leading branches of trade within its influence, has outrun all just expectations.

Its future bearing upon these great interests will only be limited by the horizon that marks the boundary of the enterprise, improvement and prosperity of the west, our country, and the world.

Looking, then at this property, in its true position, with all the numerous advantages attending it, as well as the superior character of the property itself, and the low price at which it will be sold, it is no assumption to assert, that no part of the country, at the present time, offers greater inducement to the farmer or business man of every description than does this district of land; and for the benefit of the canal fund, and the counties in which they are situated, the hope is, that they will not long remain unsold and unoccupied."

4485 Thereupon counsel for complainant again called the court's attention to the letters of Colonel Bixby and the Assistant Secretary of War, and urged the admission in evidence of said document which had been previously excluded. Whereupon, after extended argument, the court ruled as follows:

"The COURT. I will admit the evidence and reverse the ruling."

Said documents were received and read in evidence as follows:

"UNITED STATES ENGINEERING OFFICE,
508 Federal Building,
Chicago, Ill., March 27, 1906.

Brig. Gen. A. Mackenzie,
Chief of Engineers, U. S. Army,
Washington, D. C.

General:

1. In reply to Department letter (E. D. 58726) dated
4486 March 16, 1905, as to the proposed plans of a water power company for a dam across the Desplaines river, Ill., just above its mouth, which have been verbally and informally presented to your office by the Hon. H. M. Snapp and the water-power representatives, I have herewith to submit report as follows:

2. The dam in question is that proposed by Chas. A. Munroe, of Chicago, Ill., as explained by his letter to this office under date of March 20, 1906, with enclosures (copies herewith—2 letters, 3 blueprints). (5 incls.)

3. The Desplaines river, so far as now known to this office, has never yet been considered a navigable stream of the United States. It is therefore apparently as yet subject to such jurisdiction as applies to all other unnavigable streams and not subject to the provisions of Section 9-13, Act of March 3, 1899, or to other similar U. S. legislation.

4. The agents of the water power company in question, informally claim to have secured possession of all the land on each bank of the river necessary to allow for construction of the dam and of its accessories, and to protect themselves from all future claims for overflowage created thereby, so far as any existing known rights are concerned; and they likewise claim that there is no existing state law, or United States law which prohibits their legally going ahead with their proposed con-
4487 struction and that no special law is needed therefor. They admit, however, that in some minor matters, they still lack necessary authority from the local Board of Supervisors, to condemn certain properties which they still wish to acquire in order to facilitate or simplify their future work (such permission, however, not being absolutely essential to such work) and they state that the Board of Supervisors are willing to grant such author-

ity as soon as it is evident that the proposed power dam construction will not interfere with the future development of the river for navigation purposes.

5. The water power company agents likewise state that their object in bringing the matter up before the War Department at present, is to make evident that the proposed dam construction not only does not conflict with any existing U. S. law but also will assist rather than injure the possible future navigation of the Desplaines and Illinois rivers, should the improvement of such rivers ever be authorized by Congress in the manner proposed by the last Board Report of August 26, 1905, upon the feasibility and cost of a navigable waterway from Lockport, Ill., to St. Louis, Mo., via the Desplaines, Illinois, and Mississippi rivers, (House Document No. 263, 59th Congress, 1st Session); and they desire to secure from the War Department some expression of opinion, informal or otherwise, so far as it can properly be given, that will allow them to assure
4488 all inquirers that the War Department so understands the situation, and is making no objection to such prompt progress of the work as is necessary to a business enterprise of its magnitude and importance.

6. Paragraph 17 of the Board Report of August 26, 1905, above referred to, specially stated that the plan submitted by the Board was 'not designed to develop water power, but there will probably be no difficulty in modifying it, so as to confirm to such development if those who are to benefit thereby will co-operate with the Government. They should pay the cost of the dams, and the damage from flowage, which is no more than they would be compelled to do if the Government made no improvement.' The plans herewith submitted by Mr. Munroe show plainly a proposed co-operation such as that described in the above Board report, offered in such manner as not only to pay the cost of this power dam, and to protect the United States against flowage damage, but also to lessen by one the number of locks and dams necessary for future navigation and to otherwise save both time and money ($142,385 in first cost, and $4,000 annually thereafter for maintenance and operation) to the United States, in case Congress should finally decide to undertake the improvement covered by the August 26, 1905, Board report, or to otherwise make

this river navigable in this neighborhood. All information, so far received by this office, appears to substantiate the statements of Mr. Munroe, as described above;
4489 and I consider that his proposition should be encouraged and that he should receive from the War Department whatever expression of favorable consideration may be proper and allowable under such circumstances.

7. I have carefully considered the question of this power dam project and have talked it over at intervals with Mr. Woerman, while he was Assistant Engineer in local charge of the Illinois river survey under this office before he had been employed by Mr. Munroe, as well as since that time, and have discussed the matter also with Mr. Munroe; and I believe that the provisos of the next paragraph below are fair and advantageous to both sides, and will leave to the future only the question of regulating pool levels so as to avoid a conflict between depths of water needed for navigation and heads of water needed for power purposes, and so as to divide up the river water between the two according to such rights as may exist when the river shall become a navigable water (which it appears not to be at present), and when the United States shall decide to give up the use of the canal and to assume the improvement of the river. Until such time I do not see how the War Department can assume any definite jurisdiction of the Desplaines river or make any definite demands upon any water-power company already organized for the use of this river. It is my present understanding that these provisos will be accepted by Mr. Munroe.

4490 8. I have therefore to recommend that the Hon. H. M. Snapp and Mr. Charles A. Munroe be informed that the War Department will waive any and all objections which it may have to the progress of such water-power dam construction as proposed by Mr. Munroe's letter of March 20, 1906, and its inclosures, provided that he, on the part of the power dam owners, agrees.

(a) that he will construct and maintain in good repair, just above the mouth of the Desplaines river, in location as approximately shown on the blueprints, a dam and spillway sufficient to hold the water surface of its upper pool at a height equal to the present mean level of Lake Joliet (taken at 512.0 feet, Memphis datum); and later

whenever Congress shall have ordered the improvement of the Desplaines river for navigation purposes, will raise this dam 3.0 feet higher (giving pool level of 515.0 feet, Memphis datum) if the War Department shall so order; and will grant the United States the use of such pool so far as needed for navigation;

(b) that he will assume the cost of, and protect the United States from, claims for all flowage damages caused by this dam between its site and the north line of Section 11, Township 34, Range 9 East, which line is about 1.5 miles by river above the next higher lock and dam proposed by the Board report (*i. e.*, Lock No. 4 and Dam No. 2, at the foot of Treat's Island);

4491 (c) that he will grant to the United States a strip of land at least 150 feet wide across the north end of this dam, to be so located between it and the towpath of the present Illinois and Michigan Canal, as to connect the present mid river above, to the same below, in the manner approximately indicated on the accompanying blueprints; such strip to be used by the United States for the construction and maintenance of a boat lock, its necessary approaches, and other purposes of navigation;

(d) that he will do all the above, free of cost to the United States;

Provided, that the War Department will waive any and all objections which it may have to the progress of such water-power dam construction.

Very respectfully,

W. H. BIXBY,
Lt. Col. Corps of Engineers."

4492 "WAR DEPARTMENT.
Washington, June 7, 1906.

Sir—

In reply to your letter of June 5, 1906, addressed to the War Department, in the matter of the construction by yourself and associates of a dam and spillway across the Desplaines river near its mouth, at the location and as shown on maps submitted with your letter of March 20, 1906, addressed to Lieutenant Colonel W. H. Bixby, Corps of Engineers, U. S. Army, I have the honor to advise you as follows:

It is understood that yourself and associates are willing to comply with the following conditions, viz:

First. That the details of construction shall be such as to insure premanency and of sufficient capacity to hold the water surface of its upper pool at a height equal to the present mean level of Lake Joliet (taken at 512.0 feet Memphis datum); and later whenever Congress shall have ordered the improvement of the Desplaines river for navigation purposes, the dam shall be raised by you and your associates 3.0 feet higher (giving pool level of 515.0 feet, Memphis datum), if the War Department shall so order; the United States and the public to have the free use of such pool so far as needed for navigation purposes, and the use of water for power purposes shall be so limited that the level
4493 of the pool shall at no time be reduced below that adopted for navigation in the plans of the United States for the slack-water improvement of the river.

Second. That the United States shall be protected from claims for all flowage damage caused by the dam between its site and the north line of section 11, township 34, range 9 east, which line is about 1.5 miles by river above the next higher lock and dam proposed by the Board of Engineers' report (*i. e.*, Lock No. 4 and Dam No. 2 at the foot of Treat's Island).

Third. That there shall be conveyed to the United States free of cost a strip of land at least 150 feet wide across the north end of this dam, to be so located, between it and the tow-path of the present Illinois and Michigan Canal, as to connect the present midriver above the same below in same manner approximately indicated on the accompanying blueprints; the right of the United States to enter upon and use such strip of land for the construction and maintenance of a boat lock, its necessary approaches, and for other purposes of navigation, if it so desires, without liability for damages resulting in any way from its operation in connection with construction or maintenance of said lock and appurtenant works to be duly guaranteed.

If these conditions are complied with, in the opinion of the Chief of Engineers, U. S. Army, concurred in by this department, the work proposed is in general har-
4494 mony with the work of improvement recommended by the Board of Engineers appointed under authority of the River and Harbor Act of June 13, 1902 (32 Stat. L., 331, 364), in its report dated August 26, 1905, printed

as House Document No. 263, 59th Congress, first session.

Inasmuch, however, as Congress has not as yet authorized the improvement of this river, this department does not deem it expedient to take further and definite action in the matter of approving the plans.

Very respectfully,

ROBERT SHAW OLIVER,
Assistant Secretary of War.

MR. CHARLES A. MUNROE,
The Rookery, Chicago, Illinois."

4495 Thereupon counsel for defendant read in evidence the deed from Thomas Ford, Governor of the State of Illinois, to the trustees, the trustees at that time being William H. Swift, David Leavitt and Jacob Fry, trustees of the Illinois and Michigan Canal.

Said deed was thereupon marked Snyder Exhibit 1, and is as follows:

4496 *To all to whom these presents shall come, I, Thomas Ford, Governor of the State of Illinois, send Greeting:*

Whereas, the General Assembly of the State of Illinois passed an act approved the twenty-first day of February, in the year of our Lord one thousand eight hundred and forty-three, entitled "An Act to provide for the completion of the Illinois and Michigan Canal and for the payment of the Canal debt 'Which said act, is in substance and effect as follows, viz:

Whereas, It has been represented, that certain holders of the bonds of this state are willing to advance the necessary funds for the completion of the Illinois and Michigan Canal, upon being secured the payment of their said advances, and of their said bonds, by a vested lien upon the said canal, lands and revenues; for the purpose, therefore, of accomplishing an object so desirable and beneficial to the said bondholders and the State:

SECTION 1. *Be it enacted by the people of the State of Illinois represented in the General Assembly.* That, for the purpose of raising a fund for the completion of the Illinois and Michigan Canal the Governor of this State, be, and hereby is fully authorized and empowered to negotiate a loan solely on the credit and pledge

of the said Canal, its tolls, revenues and lands, to be
4497 granted to trustees, as hereinafter provided of one million six hundred thousand dollars, for a term not exceeding six years; and at a rate of interest not exceeding six per cent. per annum, payable out of the first moneys to be realized from the said canal, its land, tolls, and revenues; the payment of interest and reimbursement of principal to be at such place, within, or without the United States, and payable in such currency as may be agreed on.

Section 2. The holders of Canal bonds and other evidences of indebtedness of this State, issued for the purpose of aiding in construction of the Illinois and Michigan Canal, or hereafter to be issued for work done, percentage, scaleage, or damages, shall be first entitled to subscribe in proportion to the amount of bonds, or other indebtedness held by them, and take the whole of the said loan; but if within a reasonable time, to be determined by the Governor, any of the said holders of Canal bonds, or indebtedness, shall neglect or refuse to subscribe as aforesaid, the whole of the said loan may be subscribed for, and taken by other holders of canal bonds, or indebtedness; but if within a reasonable time, to be determined upon by the Governor, the holders of the said canal bonds or other evidences of indebtedness, aforesaid shall not subscribe for, and take the whole of the said loan, then, and in that case, any other person or persons, body politic or corporate, shall be entitled to subscribe for, and take so much of
4498 the said loan as may remain unsubscribed for, by the said holders of bonds or other evidences of debt aforesaid.

Section 3. After the said loan shall be subscribed for, as aforesaid, there shall be appointed three discreet persons to constitute a Board, to be known by the style and description of the 'Board of Trustees of the Illinois and Michigan Canal,' one of the said trustees shall be appointed by the Governor of this State, and the other two shall be elected or appointed by the subscribers to the said loan, or the holders of the certificates authorized by this Act, in manner and form as hereinafter mentioned. Whenever any vacancy shall occur in the said Board of Trustees, either by death or resignation, or from any other cause, said vacancy shall be filled

by the Governor, or holders of said certificates, to whom belonged the appointment of the Trustees whose seat shall have become vacant, as the case may be.

Section 4. The first election of Trustees by the subscribers to said loan, under this act, shall be held at the Canal office, at Lockport, at such time as the Governor of this State shall appoint, under the direction of one of the Judges of the Supreme Court of this State, who is hereby appointed inspector of the first election, and the two persons then elected as Trustees by the said subscribers, and the person appointed trustee by the
4499 Governor shall hold their offices for two years from the time of their said election or appointment, and until others are elected.

Section 5. Subsequent elections shall be held every two years, at such time and place, and under the directions of such persons as a majority of the Trustees, for the time being shall, by resolution to be entered on their minutes, appoint, and shall hold their offices for two years, and until others are elected in their stead.

Section 6. At the election of Trustees under this act, each stockholder shall be entitled to one vote for each and every one thousand dollars of stock held by him; and in all elections, votes may be given in person or by proxy.

Section 7. All elections shall be by ballot, and the two who shall have the greatest number of votes shall be the two Trustees duly elected by the said subscribers or holders of said certificates. At all such elections, the said subscribers or holders of said certificates, shall designate upon their ballots one of the persons voted for as President; and the person having the greatest number of votes as Trustee and president, shall be one of the said Trustees and President of said Board.

Section 8. The said Board of Trustees of the Illinois and Michigan Canal, when duly appointed and elected, as aforesaid, shall apportion their respective duties among themselves, and so far as is not incom-
4500 patible with this act, shall possess all the powers, and perform all the duties conferred upon the Board of Commissioners of the Illinois and Michigan Canal, by the act entitled 'An Act for the construction of the Illinois and Michigan Canal,' approved January ninth, eighteen hundred and thirty-six, and the acts supple-

mentary and amendatory thereto; and shall take an oath or affirmation, and give bonds, with security, for the faithful discharge of the duties imposed upon them by this act.

Section 9. If the holders of any of the said canal bonds, or other evidences of indebtedness issued for the purpose of aiding in the construction of the Illinois and Michigan Canal, shall become subscribers for the said loan, or any part thereof, they shall, at the time of subscribing, file or cause to be filed with the Governor, a brief description of said bonds or other evidences of indebtedness, aforesaid, owned by them; which description shall be deposited by the Governor in the office of Auditor of Public Accounts, in order that the evidences may be preserved to discriminate the holders who subscribed for the said loan, and to identify the said bonds, or other evidences of indebtedness, aforesaid, that may in consequence be entitled to a priority of payment out of property and assets granted to the Board of Trustees as hereinafter provided.

Section 10. For the purpose of placing in the hands of Trustees full and ample security for the payment of
4501 said loan, authorized by this act, and the interest thereon, as well as for securing a preference in the payment of such of the canal bonds and other evidences of indebtedness issued by this State, for the purpose of aiding in the construction of the Illinois and Michigan Canal, as may be owned by the subscribers to the said loan, the State does hereby irrevocably grant to the said Board of Trustees of the Illinois and Michigan Canal, the bed of the said Illinois and Michigan Canal, and the land over which the same passes, including its banks, margins, towpaths, feeders, basins, right of way, locks, dams, water power, structures, stone excavated and stone and materials quarried, purchased, procured or collected for its construction, and all the property, right, title and interest, of the State, of, in and to, the said Canal, with all the hereditaments and appurtenances thereunto belonging or in anywise appertaining; and also all the remaining lands and lots belonging to the canal fund, or which hereafter may be given, granted, or donated by the General Government to the State, to aid in the construction of the said canal, and the buildings and erections belonging to the State thereon sit-

uated. The said Board of Trustees to have, hold, possess, and enjoy the same as fully and as absolutely, in all respects as the state now can, or hereafter could do, for the uses, purposes, and trusts hereinafter mentioned; but it is to be understood that all canal lands and
4502 lots heretofore sold by the Board of Commissioners upon which moneys are now due, or may hereafter become due, whether the said lands and lots be now forfeited or relinquished, or hereafter become forfeited or relinquished shall be exempt from the aforesaid provisions of this act; and the trustee herein provided to be appointed by the Governor, or any other officer, or officers having the management of the affairs of the canal, until said Trustee be appointed on the part of the State, is hereby authorized and required to settle all accounts due to contractors and others (except for such damages as are hereinafter provided for) by issuing certificates of indebtedness, which together with the certificates of Indebtedness Scrip and acceptances heretofore issued by the said Canal Commissioners shall be received by said trustee, or other officer or officers aforesaid in payment for said lots and lands whenever they may be presented for that purpose, the said lands and lots hereby reserved shall, within three months after the passage of this act, be appraised, as is provided in the thirteenth section of this act, and sold in accordance with the laws of this State negotiating the sale of Canal lands.

Section 11: The subscribers to the said loan shall execute an agreement to, and with, the Governor of this State, to pay the amount by them respectively subscribed, to the said Board of Trustees, at such times and in such
4503 proportions as said Trustees shall direct; and said agreement shall specify the manner in which said Trustees shall give notice to the said subscribers of every call for payment; *provided*, That in case any subscribers under the provisions of this act, shall fail, neglect, or refuse to pay any installment at the time called for by said Trustees, he shall forfeit all payments previously made, and all benefits and advantages arising under the provisions of this act; *provided, however*, That the said trustees shall be bound to make a call for at least one hundred thousand dollars per quarter, for the first year after their appointment.

Section 12. Whenever and as often as the said subscribers to the said loan shall make a payment of any portion of their subscriptions, in pursuance of a call of the said Trustees, the said Board of Trustees, by their President and Secretary, under the seal of said Board, shall execute a certificate to each of the said subscribers for the amount paid by them or their respective subscriptions, with one year's interest at the rate of six per cent., added to the principal, stipulating for the payment of the same within six years, with interest at the rate of six per cent. per annum, to be computed after one year from the date of said certificate, and to be paid semi-annually thereafter; the said principal and interest to be paid by the said Trustees out of the first
4504 moneys to be realized by them from the Illinois and Michigan Canal, its assets, revenues, tolls, and lands granted to the said trustees by this act; which said certificate shall also be countersigned by the Governor, and the impress of the great seal of the State shall be affixed thereon by the Secretary of State.

Section 13. The said Board of Trustees when appointed are hereby authorized to take possession of the said canal, lands, property and assets, granted them by this act, and proceed to complete the same. They are hereby authorized to make such changes and alterations of the original plan of said canal, as they may deem advisable without reducing its present capacity, or materially changing its location, having due regard to economy, permanency of the work, and an adequate supply of water at all seasons. None of the lots, lands, or water powers so granted to the said Trustees, shall be sold until three months after the completion of the said canal; the said lots, lands and water powers shall then be offered for sale by the said Trustees at public auctions, in lots and legal subdivisions, once or oftener in each year, for the four succeeding years; said sales to be made for cash, or on credit, in the manner prescribed in the act of ninth of January, eighteen hundred and thirty-six. The said land, lots, and water powers before they are offered for sale as aforesaid shall be appraised by three disinterested persons to be appointed by the Judge of the Circuit in which said lands, lots
4505 and water power are situated, who shall take an oath faithfully and impartially to discharge the duty of ap-

praisers; said lands, lots, and water power, when so appraised, shall not be sold for less than the appraisement. After the expiration of said four years, the said Trustees shall expose the residue of said lands, which may remain on hand, to sale at such times, and in such manner, as they may deem proper. The said Board of Trustees are authorized to convey lands and water powers sold by them as aforesaid, after the purchase for the same be fully paid, but not before, and the said land and lots shall be exempt from taxation of every description, by and under the authority of any law of this State, until after the same shall have been sold and conveyed by the said Trustees, as aforesaid; Provided, also, that in the construction of the said canal, no change shall be made in its location, so as to divert the water power from canal lands. *Provided,* That in all cases where improvements were made upon the said canal lands or lots, previous to the first day of February, eighteen hundred and forty-three, the owner of such improvements shall be entitled to purchase the said lands or lots, on which said improvements are situated, at an appraisement to be made as aforesaid, without reference to said improvements.

Section 14. The said Trustees shall proceed to the
4506 completion of the said canal, in a good substantial and workmanlike manner, so that the same shall, if practicable, be ready for use and navigation within two years and six months from the time this act goes into operation. The said Trustees shall keep a just, full and accurate account of all the costs and expenditures of completing and superintending the said canal, and of the rents, issues, revenues, and profits received by them from the said canal and from the property granted to them by this act; and of the amounts received by them under the said loans, and shall annually make a report to the Governor in manner and form specified in the forty-third section of the said act of January ninth, eighteen hundred and thirty-six; *Provided,* That in case the subscribers under the provisions of this act, shall fail or neglect, to complete the said canal within three years after this act goes into operation, then and in such case, the lands and property hereby granted to said trustees, shall revert to the State.

Section 15. The said Board of Trustees shall an-

nually establish a tariff of tolls to be paid for transportation on said canal, but the legislature hereby reserves the right to increase the tolls with a view to an increase of revenue, but shall not reduce the same without the consent of the Trustees, and are hereby fully authorized
4507 and empowered to collect the same, and from time to time make, ordain and establish such reasonable rules, by-laws, and regulations, in relation to the collection of tolls, the transportation upon the canal, the conduct of boats and rafts, and the general policy of the said canal, as are usual, or may be found necessary, and to enforce the observance of the same; and that said canal when completed, shall in all future time, be free for the transportation of the troops of the United States, and their munitions of war, without the payment of any toll whatever.

Section 16. After the completion of the said canal, as aforesaid, the said Board of Trustees shall make annual dividends of the moneys which shall come to their hands from the said canal, its assets, tolls, revenues, and lands granted to the said Trustees by this act after payment of incidental expenses among the holders of the bonds of this State, in the following order: First, the said Board of Trustees shall annually make a pro rata dividend or payment of said moneys on the certificates given to the subscribers to the loan authorized by this act until said certificates and interest thereon are fully paid. Second, the said Trustee shall then make annual dividends and payments of said money upon the interest due upon the bonds and other evidences of indebtedness held by the subscribers to the said loan, a description whereof shall have been filed with the Gov-
4508 ernor, as provided in the ninth section of this act, until the interest thereon is fully paid. Third, the said Trustees shall then make annual dividends and payments of said money upon the interest due to the non-subscribing holders of bonds or other evidence of canal indebtedness. Fourth, after paying all interest due such non-subscribing bondholders, the said Trustees shall make annual dividends pro rata upon the principal of the bonds and other evidences of canal indebtedness held by the subscribers to said loan, as provided for by the ninth section of this act, until the same shall be liquidated; at which time the trust hereby created shall

cease, and the canal shall revert to the State, with all the appurtenances thereunto belonging:

Provided, That the certificate of canal indebtedness, not stipulating, on their face, for the payment of interest, shall, when registered by subscribers to said loan, as hereinbefore provided, bear an interest of six per cent. per annum, from and after they shall be so registered: *Provided, further,* that no appraisal shall be made for any damages arising under the provisions of any contract, entered into in pursuance of an act for the construction of the Illinois and Michigan Canal, unless the contractor or contractors interested therein shall first signify his or their consent in writing (which writing shall be deposited with the appraisers, to be filed in the Auditor's office), that such appraisal of damages
4509 shall be made without allowing any prospective damages, or any forfeits which said contractor or contractors might have made, had they finished their jobs, but such contractor or contractors shall be allowed the value of their machinery upon the canal at the time the work stopped, and back percentage and scaleage, which entire amount of damages allowed to all contractors shall not exceed the sum of two hundred and thirty thousand dollars.

Section 17. The Governor is hereby authorized and empowered to appoint three discreet and skillful persons to go onto the jobs and lettings upon the canal, and appraise the actual damage which the respective contractors upon the said canal, will sustain, in being deprived of the same; said appraisal shall be final and conclusive, unless appealed from. That if any person shall consider himself aggrieved by the decision of said appraisers, he may appeal from the same, at any time within thirty days, to the Circuit Court of the County in which the job so appraised is situated. If the Governor shall be satisfied that the appraisal is fair and honest, he shall issue certificates of Canal indebtedness, bearing interest at six per cent., to the persons in whose favor the appraisal shall be made, for the amount the holders of which certificates shall be entitled to all the privileges conferred by this act upon other holders of canal indebtedness. And the present contractors of the Illinois and Michigan Canal shall have the right to take the contract for the jobs which

they now hold, at the estimate of the engineer to be appointed by said Trustees, under such regulations and
4510 provisions as the said Trustees shall direct.

Section 18. This act shall go into effect, and the said canal property and assets shall rest in the said Trustees, as hereinbefore granted, whenever, and as soon as the full amount of the said loan shall be subscribed for and the Trustees elected as hereinbefore provided; and when this act goes into effect, so much of the acts heretofore passed by the legislature of this state in relation to the Illinois and Michigan Canal, and the canal lands and property as conflicts with the provisions of this act are hereby repealed.

Section 19. Whenever the trust created by this act shall have been fully executed and performed by the said Trustees, the said canal and the canal property that may then remain shall revert to the State; and the State hereby reserves the right of paying off the bonds and certificates to be paid to the said Trustees, and the incidental expenses paid by them, and the interest thereon; and the said Trustees shall then resign the said canal and the remaining canal property and assets to the State.

Section 20. This act shall be a public act, and shall be liberally construed in all courts of justice, and the State hereby solemnly pledges its faith to supply, by future legislation, all such defects as may be found necessary to enable the said Trustees to carry into full
4511 effect the fair and obvious intent of this act.

Section 21. If in consequence of any defect, omission, or objection to the foregoing act, the said bondholders or other persons, shall neglect or refuse to subscribe for the said loan, in that case the Governor is hereby authorized to negotiate, and enter into a contract with the said bondholders, or other persons in pursuance of the general principles of this act; *Provided,* That he shall make no further pledge of the faith or credit of the state, for any advance of money, but shall be limited to pledging the canal and canal property therefor: *And, provided further,* That in any negotiations to be made under the provisions of this act, for the purpose of carrying them into effect, nothing shall be done which shall in anywise interfere with the rights now secured to the holders of canal bonds. The Governor is hereby

vested with all such powers as may be necessary to carry this act into operation, or to make or cause to be made such negotiations.

Section 22. The said Trustees shall employ a chief engineer of known and established character, for experience and integrity, who shall be subject to the direction of the Trustees, but shall be required to execute a bond to the Governor, in the sum of ten thousand dollars, to be approved by him, for the faithful performance of all the duties of an engineer, and shall be subject to be re-
4512 moved by the Governor for any good reason, which he shall make known to the next General Assembly. The said engineer, shall, in addition, be required to take an oath 'that he shall faithfully and impartially perform all the duties of his office without respect to persons, and that he is neither interested, nor will be interested in any job, work, or contract, let or to be let on the canal, or connected therewith'; which oath shall be entered and subscribed on the bond of said engineer.

And whereas The General Assembly of the State of Illinois, at their session begun on the first Monday of December, in the year of our Lord one thousand eight hundred and forty-four, passed an act entitled 'An Act supplementary to an act to provide for the completion of the Illinois and Michigan Canal, and the payment of the canal debt, approved February 21st, 1843.' Approved March 1st, 1845; which said act is in substance and affect as follows, viz.:

Section 1. *Be it enacted by the People of the State of Illinois represented in the General Assembly,* That after the contract for the loan of one million and six hundred thousand dollars, as contemplated in the Act entitled 'An Act to provide for the completion of the Illinois and Michigan Canal, and for the payment of the canal debt.' Approved February twenty-first, eighteen hundred and forty-three, shall be duly executed in all respects as is provided by the terms of the above recited act, as modified by the provisions of this act, and the trustees are appointed as is contemplated in said act,
4513 the Governor of this State shall execute and deliver under the seal of State, a deed of trust to the said Trustees of all the property and effects mentioned in the tenth section of said act, which said conveyance shall include the lands and lots remaining unsold, donated by

the United States to the State of Illinois to aid in the completion of the said canal, to be held in trust as is in the said act stipulated, and it is expressly provided that the subscribers to said loan may and shall register their bonds or other evidences of indebtedness upon which they may have made or may hereafter make their subscriptions, within one year after the appointment of Trustees, and the said subscribers shall be entitled to priority in the payment of the respective advances to be made by them, and the interest thereon; also a priority in the payment of the principal and interest of the bonds or other evidences of indebtedness to be registered by them out of the proceeds of the said trust property, anything in the said act above mentioned to the contrary notwithstanding.

Section 2. The majority of the said Board of Trustees shall have power and authority to act and decide in all cases, and their acts shall bind all parties, and in appointing the said Trustees each subscriber to the said loan shall be entitled to one vote for each sum of three hundred and twenty dollars subscribed, and such election may be held in the City of New York, under
4514 the direction of the District Judge of the United States, for that district, or such person as he for that purpose may appoint.

Section 3. In case a sufficient sum shall not be subscribed or paid, to complete said canal, the said subscribers shall have *pari passu*, with other persons, who may subscribe and pay the residue of the amount necessary to complete the canal; *provided*, That the subscribers to said loan shall have the right to subscribe and fill up the amount necessary to finish said canal, in the first instance, and if they neglect so to do, then, any other person may subscribe such amount; *And provided further*. That such subscribers may register bonds upon such subscriptions as hereinbefore provided, within one year after such subscriptions.

Section 4. When the amount due for arrears and difference of interest on the registered bonds and other canal indebtedness shall be extinguished then the principal of said registered bonds and canal indebtedness shall be paid, and when the said principal shall have been paid, the said Trustees shall proceed to pay the

interest on the unregistered canal bonds, and canal indebtedness.

Section 5. The preliminary expenses of the negotiation of said contract, with the expenses of the examination of the canal property by the agents appointed by the authority of the bondholders, shall be first paid by the said Trustees unless some other provision for
4515 their payment be made by the General Assembly; but no further expense shall be incurred by the State, by sending agents to Europe or elsewhere, in relation to the matter.

Section 6. If the said canal shall not be completed within three years, as is contemplated in the fourteenth section of the above recited act, the subscribers to said loan who shall have advanced money in pursuance of their subscriptions shall not forfeit the priority of payment secured to them by this act, but shall share in the trust property *pari passu*, with such other persons as will advance further sums, if such would be necessary to complete the canal.

And whereas, After the approval of the aforesaid acts, and before the election and appointment of the said Trustees as hereinafter mentioned, the whole amount of the said loan, of one million six hundred thousand dollars, was subscribed for and filled up in strict pursuance of the provisions of the said acts and the subscribers thereto have entitled themselves to the privileges conferred upon such subscribers by the said acts.

And whereas, The said subscribers to said loan, have made and executed a contract or agreement, to, and with the Governor aforesaid in strict conformity to, and with the provisions of the aforesaid acts; and did, at a meeting duly and legally summoned and called by the said Governor, to be held in the City of New York, on the
4516 twenty-seventh day of May, eighteen hundred and forty-five, duly and legally elect in conformity with the provisions of the said acts, William H. Swift, a Captain in the service of the United States, and David Leavitt, Esquire, of the said City of New York, as trustees on the part of the said subscribers, and him, the said William H. Swift, President of the said Board of Trustees.

And whereas, The said Governor has duly appointed Jacob Fry of the County of Will in the State of Illinois, to be a trustee on the part of the said State, they the

said William H. Swift, David Leavitt and Jacob Fry, now constituting the 'Board of Trustees of the Illinois and Michigan Canal' duly elected and appointed in pursuance with the provisions of the above recited acts.

And whereas, All things which the said acts require, or provide for, as necessary to be done before the execution of a deed of trust to the said Trustees having been done and completed according to the terms and requirements the said acts:

Now, therefore, be it known, to all persons whom it may concern, that I, Thomas Ford, Governor of the State of Illinois, by virtue of the powers and authority vested in me, as aforesaid, and in execution of the provisions of the aforesaid acts, as well as in consideration of the subscriptions and contract entered into by the said subscribers, and the premises aforesaid, do by these presents, hereby give, grant, sell, bargain, convey,
4517 transfer, assign and make over unto the said William H. Swift, David Leavitt and Jacob Fry, Trustees of the Illinois and Michigan Canal, as aforesaid, and to their successors in the said trust, the bed of the said Illinois and Michigan Canal, and the land over which the same passes including its banks, margins, towpaths, feeders, basins, right of way, locks, dams, water power structures, stone excavated and stone materials quarried, purchased, procured or collected for its construction; and the said canal with all hereditaments and appurtenances thereunto belonging or in anywise appertaining; and all the remaining lands and lots belonging to the canal fund, or which may hereafter be given, granted, or donated, by the General Government to the State, to aid in the construction of the said canal; and the buildings and erections belonging to the State thereon situated, also the lands and lots remaining unsold, donated by the United States to the State of Illinois to aid in the completion of the said canal. *To have, to hold, possess and enjoy* the premises aforesaid, without hindrance or molestation, to them, the said William H. Swift, David Leavitt and Jacob Fry, as Trustees of the Illinois and Michigan Canal, as aforesaid, and their successors, in trust, as in the said above recited acts stipulated, and to, and for, the uses and purposes in the said acts expressed and intended.

And so to have, hold and enjoy the said property with

4518 the rights of controlling, managing, selling and disposing of the same, and subject to all the duties and obligations as they are set forth and specified in the said Acts of the General Assembly, until from the proceeds of the said property, and the revenue of the said canal after it shall be completed, all the moneys to be paid and trusts performed by the said Trustees, as specified in the said acts shall be fully paid, performed, satisfied and extinguished together with all just and necessary charges and expenditures incurred and to be incurred in carrying on the work and business of the said trust.

And the property of the said Trustees, the rights of the said subscribers to the said loan, or any of them, and the rights of their heirs, executors, administrators, or assigns, shall not be in anywise affected or impaired, in case any of the said subscribers to the said loan, their heirs, executors, administrators, or assigns, or the holders of bonds, or canal indebtedness, entitled to be paid by the said Trustees shall be citizens or subjects of any power at any time at war with the United States of America, or the State of Illinois.

In testimony of all which, I, Thomas Ford, Governor of the State of Illinois, in virtue of the power and authority in me vested, by force of the legislative acts above recited, have hereunto set my hand, and caused the seal of State to be affixed, this twenty-sixth day of June, in the year of our Lord one thousand eight hundred and forty-five, and of the Independence of the United States, the sixty-ninth.

THOMAS FORD.

Signed triplicate
by the Governor,
THOMPSON CAMPBELL,
Secretary of State.

State of Illinois, }
Will County. } ss.

On the 1st day of August, 1845, the within deed was left for record and was duly recorded in Book 1, pages 563, 4, 5, 6, 7, 8, 9, 70, 71, 2, 3, & 4.

ROBERT C. DUNCAN,
Recorder.

(5531)
Filed August 1st 1845.
Fees $8.82.

4520 GENERAL OFFICES BOARD OF CANAL COMMISSIONERS, STATE OF ILLINOIS.

State of Illinois, } ss.
Will County. }

I, John M. Snyder, Acting Secretary of the Board of Canal Commissioners of the State of Illinois, and Keeper of the Records and Files belonging to said Board, do hereby certify that the above and foregoing is a true and correct copy of deed now on file in this office and in my keeping, as regards the matter herein contained.

Witness my hand and the official seal of the said Board of Canal Commissioners of the State of Illinois, this 11th day of April, A. D. 1908.

JOHN M. SNYDER,
(Seal) *Acting Secretary as aforesaid.*

COUNSEL FOR DEFENDANT. I offer a release deed dated August 19, 1871, from the Board of Trustees of the Illinois and Michigan Canal to the State of Illinois of all the remaining property, assets and effect of the trust, which is signed by W. H. Swift, Henry Grinnell and Richard Rowett. I offer it from the book, circular 24, of the Illinois and Michigan Canal, bound with the final report of the Board of Trustees, October, 1871.

Said document was thereupon marked "Snyder Exhibit 3," and is in words and figures following, to wit:

"RELEASE DEED.

WHEREAS, the State of Illinois by virtue of an Act entitled 'An Act to provide for the completion of the Illinois and Michigan Canal,' approved February 21st, 1843, and various Acts of Legislature, of the State of Illinois, amendatory thereof, and by virtue of a certain deed of the Governor of this State, dated twenty-sixth (26th) day of June, in the year of our Lord, one thousand eight hundred and forty-five (1845), and recorded in Will County, on the first (1st) day of August, A. D.
4548 1845, in Book 'I,' pages 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573 and 574.

Did grant, convey to, and vest in the Board of Trus-

tees, of the Illinois and Michigan Canal, 'The bed of said Illinois and Michigan Canal, and the lands over which the same passes, including its bank, margins, towpaths, feeders, basins, right of way, locks, dams, water power, structures, stone excavated, and stone and material quarried, purchased, procured or collected for its construction; and all the property, right, title and interest of the State, of, in and to the said canal, with all the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and also all the remaining lands and lots belonging to the said canal fund, or which hereafter may be given, granted or donated, by the General Government to the State, to aid in the construction of the said canal and the buildings and erections belonging to the State thereon situated.' (Reference being had to said deed for greater certainty.)

And whereas the said trust has been fully and completely executed and performed by the said Board of Trustees, and whereas by the nineteenth (19th) section of said Act of February 21st, 1843, it was provided that 'whenever the trust created by this Act shall have been fully executed and performed by the said trustees, the
4549 said canal and canal property that may then remain, shall revert to the State.'

And whereas it has been made the duty of the said Board of Trustees by an Act entitled '*An Act to settle up and close the trust of the Board of Trustees, of the Illinois and Michigan Canal.*' Approved April 22nd, 1871, upon the termination of said trust, according to the provisions of the Act above referred to—to execute under their hands and corporate seal to the State of Illinois, a release deed of all and singular, the remaining property, assets and effects of every name and description of said trust.' And whereas said trust is now to be finally closed and terminated in pursuance of the laws above referred to. And whereas all and singular the accounts and transactions of said Board of Trustees have been fully examined and audited, and found to be correct, and the said trust fully and completely executed. Now, therefore, this indenture, made this nineteenth day of August, A. D. 1871, between the Board of Trustees, of the Illinois and Michigan Canal, party of the first part, and the State of Illinois, party of the second part:

WITNESSETH: That the said Board of Trustees, in

consideration of the premises do hereby remit, release, transfer and quitclaim to the said State of Illinois, all and singular, the Illinois and Michigan Canal, and all its appurtenances, and all and singular the remaining property, assets and effects of every name and descrip-
4550 tion, of said trust, subject nevertheless to all the legal liabilities if any now existing against the said Board of Canal Trustees.

IN WITNESS WHEREOF, the said Board of Trustees, of the Illinois and Michigan Canal, have hereunto set their hands and caused their corporate seal to be hereunto attached, the day and year above written.

(Signed) W. H. SWIFT,
" HENRY GRINNELL,
" RICHARD ROWETT.

(Seal of the Board of Trustees of the Illinois and Michigan Canal.)

Acknowledged by each trustee, and delivered to the Governor of Illinois, September 11, 1871.

4587 Counsel for defendant offered in evidence the certified copy of the voucher of the State of Illinois to Henry S. Piepinbrink, Sheriff of Will County, at Joliet, Illinois, covering payment of the judgment in the case against Slater and Druley, with the Sheriff's costs and the costs in the Supreme Court, the total being $956.38, to show by this and other records of the Illinois and Michigan Canal Board of Trustees, that the suit, while nominally a Druley suit, in the name of Druley and Slater, was actually defended by the State of Illinois, and the judgment paid by the State of Illinois.

(Which said document marked Snyder's Exhibit 11 was received in evidence and is in the words and figures following, to-wit:)

4588 COPY:

"SNYDER EX. 11."

FOR MAINTAINING AND OPERATING THE ILLINOIS AND MICHIGAN CANAL AND LOCKS IN THE ILLINOIS RIVER.

STATE OF ILLINOIS

To Henry F. Piepenbrink, Dr.

No. 311 Address Sheriff Will County, Joliet, Ill.

1882 Place but one item on each line of the column.

			Dollars	Cts.
May 31	For amount of judgment rendered in Appellate Court, April 6, 1881, in case of Wm. Adam vs Robert S. Slater & Wm. M. Druley		800.00	
	For interest on said judgment Apr. 6/81 to June 10/82, 1 yr—2 mos. 4 days at 6%		56.53	
	Paid under protest see Canal Commissioners Record Book under date of June 8, 1882	79.00		
	For costs in Appellate Court in said case Less amount paid by Canal Commissioners Sep 12/81	9.60	69.40	
		30.15		
	For costs in Supreme Court in said case Less amount paid by Canal Commissioners Oct. 14, 1881	10.00	20.15	
	For Sheriff's costs since rendering of judgment		10.30	
	Charged to Tolls and Rents		956.38	

Examined and Found Correct.

The above has been received and the work performed.

B. F. SHAW
Secy.

WM. THOMAS
Supt.

4589 Received from the Treasurer of the Board of Canal Commissioners.

Nine hundred fifty six and 38/100 Dollars, In full for the above account, and it is hereby certified that the articles as specified in the above voucher have been furnished to the Board of Canal Commissioners for the use of the Illinois and Michigan Canal, of the Locks in the Illinois River, and that the prices charged are the lowest market price for the same.

HENRY F. PIEPENBRINK,
Sheriff.

Dated Joliet, Illinois, 6/15/82.

Signed Duplicates, approved for payment.

I. O. GLOVER,
President.

GENERAL OFFICES BOARD OF CANAL COMMISSIONERS,
STATE OF ILLINOIS.

State of Illinois } ss.
Will County }

I, John M. Snyder, Acting Secretary of the Board of Canal Commissioners of the State of Illinois, and Keeper of the Records, and Files and Seal belonging to said Board, do hereby certify that the above and foregoing is a true and correct copy of Voucher Number Three hundred and eleven (311), issued to Henry F. Piepenbrink, as Sheriff of Will County on May 31st, 1882, of the Board of Trustees of the Illinois & Michigan Canal, now in this office and in my keeping, as regards the matter therein contained.

Witness my hand and the official seal of the said Board of Canal Commissioners of the State of Illinois, this Sixth day of June A. D. 1908.

(Signed) JOHN M. SNYDER,
(Seal) *Acting Secretary as aforesaid.*

4590 Counsel for defendant offered in evidence as Snyder's Exhibit 12 a voucher to G. D. A. Parks, who will be shown to have been the attorney who appeared of record for Slater and Druley in the case of Adams against Slater and Druley, for services in the case of Slater *et al.*, in the suit of

Adams, to $300.00; for advance printer's fees for brief, $40.00; total, $340.00.

(Which said document was received in evidence, and is in the words and figures following to-wit:)

4591

COPY.

"SNYDER'S EX. 12."

FOR MAINTAINING AND OPERATING THE ILLINOIS AND MICHIGAN CANAL AND LOCKS IN THE ILLINOIS RIVER.

STATE OF ILLINOIS,
T. G. D. A. Parks, Dr.
No. 47 Address Joliet, Ills.
1881 Place but one item on each line of this column.

		Dollars, cts.
January 3	To services in case Slater *et al.* ads to date	300.00
	For advanced printer's fee for brief	40.00
	Charges to Tolls and Rents	340.00

Examined and Found Correct.
The above has been received and the work performed.
B. F. SHAW,
Sec.
(Signed) WM. THOMAS
Supt.

Received from the Treasurer of the Board of Canal Commissioners, three hundred and forty No/100 dollars, in full for the above amount, and it is hereby certified that the articles as specified in the above voucher have been furnished to the Board of Canal Commissioners for the use of the Illinois and Michigan Canal of the Locks in the Illinois River, and that the prices charged are the lowest market prices for the same.

G. D. A. PARKS.

Dated Joliet, Illinois, Jan. 13, 1881.
Signed in Duplicates, Approved for payment.
(Signed) J. O. GLOVER,
President.

4592 GENERAL OFFICE BOARD OF CANAL COMMISSIONERS, STATE OF ILLINOIS.

State of Illinois } ss.
Will County }

I, John M. Snyder, Acting Secretary of the Board of Canal Commissioners of the State of Illinois, and Keeper of the Records and Filed and Seal belonging to said Board, do hereby certify that the above and foregoing is a true and correct copy of voucher No. 47, issued to G. D. A. Parks, Joliet, Illinois, January 3rd, 1881, of the Board of Trustees of the Illinois & Michigan Canal, now in this office and in my keeping, as regards the matter therein contained.

Witness my hand and the official seal of the said Board of Canal Commissioners of the State of Illinois, this 8th day of June, A. D. 1908.

(Signed) JOHN M. SNYDER,
(Seal) *Assistant Secretary as aforesaid.*

4593 Counsel for defendant also offered in evidence a certified copy of a resolution of the Board in regard to the payment of the judgment and costs, made May 10, 1882.

(Which said document was received in evidence and is in the words and figures following, to-wit:)

4594 "SNYDER EX. 13."

COPY OF PREAMBLE AND RESOLUTION IN REGARD TO PAYMENT OF JUDGMENT AND COSTS IN CASE OF ADAM VS. SLATER & DRULEY, MAY 10TH, 1882.

On Motion the Following was Adopted:—

WHEREAS, in the case of William Adam vs. Robert P. Slater and Wm. M. Druley brought in the Circuit Court of Will County at the ..... term A. D. 1878, for the diversion of the water of the Desplaines River from the mill of said plaintiff and appealed to the Appellate Court, in which court, the judgment of said court was reversed and a judgment rendered in favor of said plaintiff for $800, for damages, and costs of suit, which judg-

ment was afterwards affirmed in the Supreme Court on appeal thereto, as will more fully appear by reference to the report thereof in the 101st vol. of the reports of said Supreme Court and

WHEREAS the alleged diversion for which said recovery was had was of water supplied to said Slater and Druley under a lease to them executed by this Board dated July 11, 1878, whereby it became equitably and justly incumbent on the State to assume the responsibility of such suit.

THEREFORE RESOLVED, That the said judgment and costs be paid but with a view to saving the future rights of the State, that said judgment be paid under protest.

4595 GENERAL OFFICE BOARD OF CANAL COMMISSIONERS, STATE OF ILLINOIS.

State of Illinois } ss.
Will County. }

I, John M. Snyder, Acting Secretary of the Board of Canal Commissioners of the State of Illinois, and Keeper of the Records and Files and Seal belonging to said Board do hereby certify that the above and foregoing is a true and correct copy from the Record Book No. 4, page 235, of the Board of Trustees of the Illinois & Michigan Canal, now in this office and in my keeping, as regards the matter therein contained.

Witness my hand and the official seal of the said Board of Canal Commissioners of the State of Illinois, this Sixth day of June, A. D. 1908.

(Seal) (Signed) JOHN M. SNYDER,
Acting Secretary as aforesaid.

4596 Counsel for complainant stated that he further offered it as a basis of showing hereafter the position taken by these people as to the condition of this river in the filing of their briefs in the Supreme Court.

4836 COUNSEL FOR DEFENDANT. We have here the briefs filed in the Appellate and Supreme Courts in the case of Druley against Adams, and we have also the abstract of the records in that case which was signed by the counsel for both parties, and signed by the judge. We haven't here any per-

son who can prove that those are identical with the abstract and the briefs filed in that case. We can produce such proof. We will produce Mr. Knox to testify that they are duplicates. We can produce him and he will so testify. His home is in Joliet.

COUNSEL FOR COMPLAINANT. In order to avoid a continuance for that purpose, counsel for complainant states that the witness named when produced will testify as counsel states, but we insist that the evidence to which the witness would so testify is irrelevant, incompetent and immaterial.

COUNSEL FOR DEFENDANT. The doctrine under which we claim the right to introduce him is that as to matters in controversy in a lawsuit statements or admissions made by a party at any time at any place are competent, and that is especially so of statements made in proceedings of record to which such party was a party or where he was the real
4837 party in interest. The introduction of briefs—in my experience—I have known it a number of times as being of the same nature as pleadings. Pleadings are always taken up as admissible against a party. We have established in this case that while the nominal party was Mr. Druley, the actual party was the State. The Canal Commissioners, by their resolution said it was their duty to assume, the State's duty to assume, and the state retained and paid the attorney who appeared in the case for Druley and Slater and paid the fees in that case. The record shows clearly that it was really a suit by the State. The rights of the State or what was contended for throughout were in the briefs of both parties. It is upon that theory that we claim they are admissible.

4838 Said book was introduced (App. II, p. 3905; Trans., pp. 6059-6256; Abst., pp. 1733-1827), and counsel for defendant read from the abstract of record, Circuit Court of Will County, filed in the Supreme Court, September Term, A. D. 1881, William M. Druley, Appellant, vs. William Adam, Appellee. Appealed from Appellate Court, Second District, a portion on page 2:

> "BE IT REMEMBERED, &c., that evidence was introduced which for the purposes of this appeal, it is stipulated by and between the parties established the following facts. And then sets out the ownership on the part of the plaintiff of the property in question, his having succeeded to Philo A. and Orlando H. Haven, having had mills propelled by water power upon the river, the water

being derived from the river. That the canal was open for navigation in the spring of 1884; that the Summit division of said canal terminates at Lockport, Illinois, on Section 23, Town 36, Range 10, and was improved by the City of Chicago so as to make a continuous level drawing water from Lake Michigan from the terminus of the South Branch of the Chicago River to Lock No. 1, aforesaid under the Act of the General Assembly of date
4839 February 16, 1865; that said improvement was completed about May 1, 1871; that the State of Illinois, by Act of the General Assembly, assumed charge of said improved level in the year 1871, by Act of date October 20, 1871, and has since controlled the same.

That from Dam No. 2 in Joliet, south the canal level is known as the Channahon level; that all the water which is put into said level for any purposes is drawn from the pool formed by Dam No. 2 at Joliet, above plaintiff's dam, and since the building of said canal and its opening in 1848, until the completion of the structures of defendants no water had ever been drawn from said level, or had been put into the same except as required for navigation purposes, nor had any water power been used or leased on said level.

That there is more water introduced into the Summit level of said canal by reason of the improvement known as the deep cut, above referred to, than is required for navigation purposes, and more than is required for the purposes of the canal between Locks 1 and 2, 2 and 3, and 3 and 4, on said canal between Lockport and Joliet; that the use of such surplus water is leased to Norton & Co., at Lockport, so far as they may require, and the balance is discharged by a spillway,—both the water used by Norton & Co. and that discharged by said spillway being conducted by a race shown in map 1 from the hydraulic
4840 basin, connected with the canal, also shown on said map, to the Desplaines River, as shown on said map, at a point in Section 23, in said Town, and from thence mingled with the other water of said river, follows the bed of said stream through Section 22, 23, 27 and 34 in the Town of Lockport, and partially through Section 3, in the Town of Joliet, as shown by said map, to a point where said canal effects a junction with said river."

"That from said point in Section 3 aforesaid where said junction is made to Dam No. 2 in Joliet, said canal

4842 is contained within artificial banks or walls of stone, but comprises the original bed of said river, and leaving said river as shown on said map at Dam No. 2.

That there is a mill site and mill on said river, Sec. 23 in Lockport, and has been for many years; and that from the points on Sec. 23 where said surplus water is discharged to the point on Sec. 3 in Joliet, where the canal enters into the bed of said river, there is no connection between said canal and said river, and no structures, works or improvements of any kind were ever placed on said river, or any control exercised over the same by any canal authorities or the state, for any purpose; that said waste-weir is never used except in case of high water and floods, or when it is necessary to draw off the water from the level for the purpose of repairs, there usually being no more water than is utilized at Norton's mills.

That the amount of water which is discharged into the Desplaines River at Lockport from the Summit division of said canal through said spillway and Norton & Company's race is about 25,000 cubic feet per minute; that the amount of water required for navigation purposes on the canal from Lock No. 1 to Dam No. 1 is about 1,220 cubic feet per minute. That the amount of water required for navigation purposes of said canal from Dam. No. 1 to the end of the Channahon level is about 3,300 feet per minute, and the amount required
4843 for navigation purposes on the Channahon level alone is about 2,800 cubic feet per minute."

COUNSEL FOR DEFENDANT. Your Honor will note it discharged in 1881—25,000 cubic feet per minute, and the amount required to be taken out for navigation purposes was 2,800 cubic feet per minute.

"That since the completion of the deep cut and the turning of such surplus water into the river at Lockport the amount of water flowing over Adam's dam at Joliet before the diversion of the water herein complained of was greater by two-thirds, as estimated, than the amount flowing over said dam prior to said deep cut improvement, and that the amount of water passing over Adam's dam since the diversion complained of is double the amount which passed over said dam before the completion of the deep cut.

That the season during which said canal is open for navigation on said Channahon level is generally from March 25th to November 25th in each year."

And also from the brief of Mr. G. D. A. Parks, attorney for the appellees in the Appellate Court, Second District, December Term, 1880, being in the same case, page 3—it is page 1 of the brief for appellees:

"The record presents the following as the principal points for consideration:

First: Viewing the state and Adams, in the relation of upper and lower riparian proprietors on the Des-
4844 plaines River, is the state guilty of a *diversion*, if it takes out above Adam's dam no more water than it brings in from Lake Michigan through its own canal?

Second: Even if the state itself be supposed guilty of a diversion by the act of passing the water from the pool above Dam No. 2 down to the Channahon level on which the oat mill of the appellees is situated, and where it can by no possibility again become available to the appellant, whatever use is made of it, can the appellees, Slater & Druly, be sued as the responsible agents in the act of diversion, which is thus already irrevocably consummated by operations at the lock and dam above?

Third: Adam having purchased subject to the release executed by his grantors in 1853, does that relief operate to bar the action?

Now, how have the legal attributes of this water, with reference to the rights of the appellant, been essentially changed? The plan of the canal as to the disposition of the surplus water, obviously contemplated this very mode of transmission from one level to another. The total fall between Lockport and Joliet is about 60
4845 feet, and in that part of the canal which concerns this case, it will be seen, there are seven successive levels; 1st, the Summit level; second, that between Locks 1 and 2; 3rd, between Locks 2 and 3; 4th, between Locks 3 and 4; 5th, between Lock 4 and Dam No. 1; 6th, between Dams 1 and 2; 7th, the Channahon level.

Into the Summit level Lake Michigan, by the recent improvement, supplies, as was contemplated in 1836, a large quantity of surplus water, estimated at about 25,000 cubic feet per minute, not needed for navigation, but very valuable to the State of Illinois and the manu-

facturing interests of Lockport and Joliet, for hydraulic purposes.

The plan of the canal within this distance affords four falls available to the state for water power—one at Lockport, leased to Norton & Co.; one at Dam No. 1, one at Dam No. 2, and one on the Channahon level, a portion of which is leased to the defendants. Thus the same volume of water is repeatedly used on successive levels within a space of about four miles.

Recently the Canal Commissioners found that the surplus water at their disposal from the level above Dam No. 2 was such that after leasing all that could be leased to advantage at the dam, and after transmitting to the appellant more than double the amount he was accustomed to receive through his own pitiful stream before the deepening of the cut" (the reference being to the Desplaines River) "there was still a large surplus that
4846 could be utilized most profitably by the state, in the method exemplified in the case at bar, viz: by drawing it directly through openings from the canal itself, and then discharging it into the river, but necessarily and unavoidably below the plaintiff's dam."

4847 On page 25:

"The fact then, that this link of communication between the hydraulic basin at Lockport, and the upper basin in Joliet," (that being Section 22, 23, 24, 27, the river in those sections) "in which the river discharges as a feeder, does not belong to the state, is, I submit, quite immaterial to the argument. It is a circumstance affecting only and exclusively the relations between those particular intermediate owners and the state. In fact, for fully two-thirds of the way, as will be seen, the river runs through canal lands, which must be supposed to have been sold subject to the right of the state to the use of the channel. But those also who purchased from the government of the U. S. must have done so after the plan of the canal connecting with the Desplaines River as a feeder was adopted, and with full knowledge of and reference to it." That language does not apply to the state, but applies to odd sections 22, 27, 23.

"2. The action was brought in evasion of our express
4848 and established public policy, in respect to controversies

with the state, arising from the management of the canal by her official agents. 8 St. cited *supra.*"

That is they could not sue the state, and they tried to avoid that by suing its commissioners.

"It is very distinctly a case coming within the reason and spirit of this wise policy of the government. Confessedly, it is a dispute between William Adam and the State of Illinois, involving the control, at Joliet, of the immense volume of surplus water which pours down from Lake Michigan through the deep cut. If Adam has been aggrieved, the state should pay the damage, and it constitutional and statutory provision, while thus taking the rights and liabilities of the state out of the jurisdiction of her judicial tribunals, contemplate that her legislature will do him ample justice. To that resort, however inconvenient, he is confined."

On page 2, of the brief and argument for appellant in
4849 the Supreme Court of Illinois, at the September Term, 1891. On page 2, the last paragraph at the bottom of the page:

"When the canal leaves the river at Dam No. 2, it pursues a southwesterly direction, diverging gradually more and more from the river, this being known as the Channahon level. On this level, and about half a mile below Adam's mill dam, the defendants in 1878 erected an oat mill on the berm or westerly bank. The Canal Commissioners had discovered, that by simple and not very expensive structures, a valuable water power, promising to yield a considerable addition to the revenues of the canal, might be developed in this quarter of the Town of Joliet; and accordingly made to Slater and Druley a ten years' lease of sufficient water to run their mill, under which lease the defendants proceeded to put their enterprise into operation. Their establishment is situated nearly a mile below Dam No. 2, where the river and the canal part company. It is for this water thus drawn from the canal, at a point far below the plaintiff's mill, and far below Dam No. 2, that the action was brought against them as lessees of the state; Adam not choosing to make his contest directly with the state herself."

Your Honor notices that the mill which was using the diverted water was below the Adam's mill, and they got
4850 the water of the river to it by carrying through the canal and around Adam's mill more water than was necessary for the purposes of navigation. The stipulation by which the Havens settled with the state, or the Canal Commissioners, being that the state should use only such water as was necessary for navigation.

"It has never been, and of course cannot be pretended that the surplus water in question is to be described as any part of the natural and customary flow of the Desplaines River; if by that expression is meant the flow derived from its natural sources and affluents in the watershed which it drains. The Desplaines is in truth a very insignificant stream, never of much use as a feeder in the season when its services are most needed, and, except as reinforced by contributions from the canal, affording sites only, for what are sometimes denominated 'thunder shower mills.'

In 1871, when the Summit level from Chicago to Lockport was finished on the original deep cut plan, which the pecuniary embarrassments of the state had for so many years suspended, drawing its supply directly from Lake Michigan, as the fountain head, the Canal Commissioners found themselves in possession on the Sum-
4851 mit level of a vast surplus of water, ten fold beyond what was required for navigation. The question then met them, how they could best utilize it for the canal revenues, and the public good?"

"First. Subject only to the reciprocal rights in the flow of the water existing between the dominant and servient estates, each riparian proprietor is the owner of the bed and banks forming the channel of a water course as absolutely to all intents and purposes, as he owns his farm upon its borders; and he may use it with precisely the same perfect and unqualified rights of dominion. No one can call him to account for such use, save only in respect to the water which flows upon, through and from his land. This doctrine is too familiar to need the support of authorities."

From page 4 of the same brief:

"The compromise was assented to by the trustees, because on their part they did not choose to be harassed with perpetual suits for even nominal damages.

The Appellate Court, however, if we rightly apprehend its decision, adopted the conclusion, not only that the release was no bar to the action, but that it even had the effect of giving to the plaintiff as grantee of the
4852 Havens, a right to claim a riparian proprietor this vast additional volume of water, produced eighteen years afterwards by an improvement which entirely revolutionized the former system of supply—an addition exceeding probably twenty times the natural flow of the Desplaines in 1853.

Holding that court, as we do, in the highest respect, we must, nevertheless, be permitted to insist here most strenuously and confidently that their position is unwarranted by any just construction of the release.

The whole transaction between the Havens and the canal Trustees, had reference to the *state of things then existing.*

The canal had been completed in 1848 upon the shallow cut or raised level plan, as the best the state in those hard times could do. Instead of a direct and never-failing supply from the lake, the level was to be supplied by the poor expedient of pumps at Bridgeport, re-inforced by the Calumet, and the feeble and uncertain tributes in spring and fall of the Little Desplaines. There are probably upon the bench of this court those who personally know how little anybody in Illinois at that early day expected the time would ever come when this channel would be carved deep through miles of solid rock to the inexhaustible bosom of the lake."

On page 49, still continuing the argument on the release of the Havens upon contract to compromise, and why it was entered into:

4853 "The Desplaines was not much of a stream, but the trustees wanted to control it as a feeder for whatever it was worth, without the liability of incessant lawsuits."

On page 39 (additional brief for appellant):

"In the case at bar the state is *directly* interested, not as a party it is true, but in the result. If this judgment is collected, the state would be both legally and morally bound to refund the money to the appellants. And then again, if the judgment of the Appellate Court is affirmed, all revenue to the state from this source will be lost."

And from the petition for rehearing filed at the March Term of the Supreme Court of Illinois, March Term, 1882, petition signed by the same attorneys, G. D. A. Parks, and also by E. F. Bull, as attorneys for the petitioner:

"May it please your Honors:

So important are the public rights involved in this case, so novel some of the questions it presents, and from certain special circumstances happening to attend it so disastrous to the interests of the canal the final establishment in this court of the claim of the appellee, that we must earnestly entreat the court to reconsider is judgment."

On page 36:

"Is it not settled by an overwhelming weight of authority that an upper riparian proprietor on a natural
4854 water course is only bound to deliver to the one below the natural and ordinary flow which he has received from the one above; and, as corollary to this, that if he adds to the stream from an independent source or reservoir of his own, he may again deduct it or an equivalent quantity?"

I omitted one paragraph on page 14, or rather the bottom paragraph on page 13:

"What is there in this mode of passing the water from one point to another on the canal, which is supposed to sever the right of the state to it? Simply this, at Lockport, the river is lower than the canal; at Joliet, at the point of intersection, the canal is lower than the river. At Lockport, the surplus, which we admit must be got rid of there in some way, is discharged into channels which lead down to the Desplaines, not far distant. But when discharged, the relative course and comparative levels of the two water courses are such, that it is destined to rejoin the canal on the fifth level below the summit level, that is, on the level between Lock No. 4 and Dam No. 1. It thus leaves the canal under the necessary concomitant condition of returning to the canal and of returning to it before the beneficial rights of the appellee, as a lower riparian proprietor, become involved. If abandonment, in the sense in which the term is here used, depends at all on intention, we absolutely know from the original
4855 plan of the canal itself, and there was not and could not be any intention on the part of the state to abandon the

water at Lockport irreclaimably to public use, save for the distance between the two levels."

I may say parenthetically, there was the contention that the intention of the parties at the time, as one act, was to discharge the water, but to reclaim it again when it got down to the outlet of the canal.

"If, then, by a physical necessity, the water was to return to the possession of the state, is it not impossible to successfully maintain that it was intentionally abandoned?

Thus the question narrows itself to a single point: Supposing that the state *intended* to assert whatever legal rights she had or might have in this water after it should have been restored to the canal, does the fact of its previous transmission from the one point to the other through the medium of the Desplaines river, a channel not belonging to her, preclude her claim?"

6057 ABSTRACT OF BOUND VOLUME OF ABSTRACTS AND BRIEFS IN DRULEY V. ADAM.

(App. II, p. 3905, referred to C. E., p. 3001; Trans., p. 4838; Abst., p. 1420.)

Exhibits put in by the defendant.

(1)

6059 SUPREME COURT OF ILLINOIS,

Northern Grand Division.

September Term, A. D. 1881.

William M. Druley, *Appellant,* *vs.* William Adam, *Appellee.* } Second District. Appeal from Appellate Court

ABSTRACT OF THE RECORD OF CIRCUIT COURT.

3 NARR. Alleges possession by plaintiff of certain lots of land with mills thereon situate; the enjoyment of the use of the water in Desplaines river, and the right to

use; that defendants by means of ditches, trenches, gates, &c., diverted the water of said river so that the same did not flow to plaintiff's mill as of right it should have done. Damage, $5,000.

4 ADDITIONAL COUNT. Alleges possession and right to use water of Desplaines river; that defendants, pretending to have license from Canal Commissioners said Canal Commissioners having the right to use the water of the river for navigation purposes only, cut certain channels so that the surplus water in said river not needed for navigation purposes in said canal, which would have flowed to plaintiff's mills, was drawn from said canal into the Desplaines river below the mills and lots of plaintiff in such manner that the water of said
6060 stream was diverted into said canal in a much greater quantity than was needed for navigation purposes, and than the commissioners had any right to draw the same above the lots and mills of plaintiff, discharged below the same, so that the water of the river did not run as it had heretofore run, so that the plaintiff was deprived of its uses, &c.

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5-15 PLEA. General notice, with a notice which contains no other facts than are found in the statement of facts forming the bill of exceptions.

18 JUDGMENT *pro* defendants; exception and prayer for appeal, &c.

19 BILL OF EXCEPTIONS.

Be it remembered, &c., that evidence was introduced which, for the purposes of this appeal, it is stipulated by and between the parties established the following facts:

That the plaintiff at the time of the commencement of this suit was possessed as the owner of lots 1, 2, 3 and 4 in block 45, and lots 1, 2, 3, 4, 5, 6, 7 and 8 in block 57, and lots 1, 2, 3, 4 and 6 in block 62, all in the School Section Addition to Joliet in Will County, Illinois; said
20 addition comprising the whole of Section 16, Town 35, Range 10 East, 3d P. M.; and that said plaintiff and his grantors have been in possession of said premises continuously since the year 1852, and prior thereto; and the said grantors to plaintiff were Philo A. and

Orlando H. Haven; that said premises are located on the Desplaines river, a natural water course running through said Section 16; that a dam, herein called Adam's Dam, is and has been standing across said river since prior to the year 1852, and that said premises have been used continuously to the date of trial by plaintiff and his grantors for mill purposes, deriving the power therefor from said Desplaines river.

That said plaintiff now and for many years has located on said premises mills propelled by water power derived from said river, and has had at the date of the diversion of water complained of located on said premises six wheels, four of which are in place to be used and which are reasonably fitted to use the water in the river, and do not require to put them in use any unreasonable detention or employment of the water flowing in said river.

That the location of said premises with reference to the Illinois & Michigan Canal and the Desplaines river
6061 in the City of Joliet, is correctly shown by the map marked "A," which shall be sent up with the record herein; and that the location and course of the Desplaines river and the Illinois & Michigan Canal from the north line of Section 22 and 23 in Town 35 north, Range 10 East (being the Town of Lockport) to the south line of Section 16, Town 35, Range 10 East (being the Town of Joliet) with the locks, levels and dams of said canal in said distance,

(3)

the dam of said Adam and the structure of said defendants on said canal below Adam's Dam are correctly shown by the map marked "13," to be sent up with this record.

That said canal was opened for navigation in the spring of the year 1848.

21 That the summit division of said canal terminates at Lockport, Ill., on Section 23, Town 36, Range 10, and was improved by the City of Chicago so as to make a continuous level of drawing water from Lake Michigan from the terminus of the south branch of the Chicago river to Lock No. 1 aforesaid, under the Act of the General Assembly of date February 16, 1865; that said improvement was completed about May 1, 1871; that the State of Illinois, by Act of the General Assembly, as-

sumed charge of said improved level in the year 1871, by Act of date October 20, 1871, and has since controlled the same.

That from Dam No. 2 in Joliet, south the canal level is known as the Channahon level; that all the water which is put into said level for any purposes is drawn from the pool formed by Dam No. 2 at Joliet, above plaintiff's dam, and since the building of said canal and its opening in 1848 until the completion of the structure of defendants no water had ever been drawn from said level, or had been put into the same except as required for navigation purposes, nor had ony water power been used or leased on said level.

That there is more water introduced into the summit level of said canal by reason of the improvement known as the deep cut, above referred to, than is required for navigation purposes, and more than is required for the purposes of the canal between locks one and two, two and three, and three and four, on said canal between Lockport and Joliet; that the use of such surplus water is leased to Norton & Co., at Lockport, so far as they may require, and the balance is discharged by a spillway,—both the water used by Norton & Co. and that discharged by said spillway being conducted by a race, shown in map 1, from the hydraulic basin, connected with the canal, also shown on said map, to the Desplaines river, as shown on said map, at a point in Section 23, in said town, and from thence mingled with the
6062 other water of said river, follows the bed of said stream through Section 22, 23, 27 and 34, in the Town of Lockport, and partially through Sec. 3, in the Town of Joliet, as shown by said map, to a point where said canal effects a junction with said river.

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That from said point in Section 3 aforesaid where said junction is made to Dam No. 2 in Joliet said canal is contained within artificial banks or walls of stone, but comprises the original bed of said river, using the same, and leaving said river as shown on said map at Dam No. 2.

That there is a mill site and mill on said river, Sec. 23, in Lockport, and had been for many years; and that from the point on Sec. 23 where said surplus water is discharged to the point on Sec. 3, in Joliet, where the canal enters into the bed of said river there is no connection

between said canal and said river, and no structures, works or improvements of any kind were ever placed on said river, or any control exercised over the same by any canal authorities, or the state, for any purpose; that said waste-weir is never used except in case of high water and floods, or when it is necessarily to draw off the water from the level for the purpose of repairs, there usually being no more water than is utilized at Norton's mills.

23 That the amount of water which is discharged into the Desplaines river at Lockport from the summit division of said canal through said spillway and Norton & Co.'s race is about 25,000 cubic feet per minute; that the amount of water required for navigation purposes on the canal from Lock No. 1 to Dam No. 1 is about 1,220 cubic feet per minute; that the amount of water required for navigation purposes of said canal from Dam No. 1 to the end of the Channahon level is about 3,300 feet per minute, and the amount required for navigation purposes on the Channahon level alone is about 2,800 cubic feet per minute.

That since the completion of said deep cut and the turning of such surplus water into said river at Lockport, the amount of water flowing over Adam's Dam at Joliet before the diversion of the water herein complained of was greater by two-thirds, as estimated, than the amount flowing over said dam prior to said deep cut improvement, and that the amount of water passing over Adam's Dam since the diversion complained of is double the amount which passed over said dam before the completion of the deep cut.

That the season during which said canal is open for navigation on said Channahon level is generally from March 25th to November 25th in each year.

That defendants' premises are located on the berm
6063 or western bank of said canal, on said Channahon level, about half a mile southwest of

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plaintiff's dam; that defendants built a tunnel un-
24 der said canal, put in water wheels, and at the date of commencing said suit had been drawing water from said Channahon level of said canal to the extent of from 6,000 to 8,000 cubic feet per minute to operate their mill, discharging the same into the Desplaines river

below the plaintiff's dam and at a lower level on said river than said dam, so that the use of said water was wholly lost to plaintiff; that but for the diversion of said water from the pool above Dam No. 2 of the Illinois and Michigan Canal into the Channahon level of said canal, and for such use by defendants, all of said water would have naturally flowed in the banks and bed of said river to said plaintiffs dam and water wheels, and could have been used by him.

That such use of said water from said canal by said defendants is by virtue of a lease for such purpose executed to said defendants by the Canal Commissioners of the State of Illinois.

That said mill of defendants and said structures for using said water had been in use at the date of the trial about two years, and that plaintiff could have used and had machinery wherewith to use all water so used by said defendants, and that the annual damage to plaintiff is from $800 to $1,000 per annum; that plaintiff's damage to date of trial is from $1,600 to $2,000.

That the course of said canal, as shown by said maps, is as originally laid out and completed in 1848.

25 That said Philo A. and Orlando H. Haven, the plaintiffs' grantors, while in possession of said premises, commenced suit against the Trustees of the Illinois and Michigan Canal, about the year 1848, to recover damages for the diversion of the Desplaines river into said canal and away from said dam; and that said suit is the identical one referred to and decided in the 5th Gilman Reports, page 548, and in the 11th Illinois Reports, page 554, and is of and concerning the same dam that plaintiff is now in possession of.

That before final judgment in said last named suit and on, to-wit: the 22nd day of August, A. D. 1853, an agreement in writing was executed between said Philo A. and Orlando H. Haven, of the one part, and said Trustees of the Illinois and Michigan Canal of the other part, in words and figures as follows, to-wit:

6064 Whereas a suit has been and is now pending at the instance of Philo A. Haven and Orlando H. Haven, against the Board of Trustees of the

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Illinois and Michigan Canal, in the Circuit Court of Will County, Illinois, in consequence of alleged damages to

a certain mill owned by said Philo A. Haven and Orlando H. Haven, situated on the Desplaines river at Joliet, Will County, Illinois, occasioned by diverting the water of said river from said mill and applying it to the use of the Illinois and Michigan Canal above said mill; and whereas the said Board of Trustees and the said Philo A. Haven and Orlando H. Haven being mutual desirous of avoiding further litigation:—

Therefore we, the said Philo A. Haven and Orlando H. Haven, for and in consideration of the sum of Three thousand and sixty dollars to us paid by the said Board of Trustees of the Illinois and Michigan Canal, the
26 receipt whereof is hereby acknowledged, do hereby release and forever discharge the said Board of Trustees and their successors in office, from all actions, rights of action, and all claim arising out of any damages heretofore, now or hereafter, to be sustained by us, by reason of the use of the waters of said Desplaines river, for the purpose of supplying said canal, in the manner the same is now supplied at the feeder at Joliet. In further consideration of the said sum of Three thousand and sixty dollars, herein expressed to have been received by us, we hereby remise, release and forever quit-claim to the Board of Trustees and their successors in office, and to the State of Illinois, whenever said canal shall revert to said State, the right to use and appropriate the water of the said Desplaines river at the feeders at Joliet, below Guard Lock No. 1 for supplying the said canal for the purpose of navigation in the same manner the water in said river in connection with other feeders is now used for supplying said canal.

We further agree that when, at any time, the Superintendent or other person having charge of said canal shall desire to reduce the quantity of water above our said mill-dam for the purpose of repairing said canal, its banks or other appurtenances at any point between our said mill and the dam across said river at said
27 feeder, that said Superintendent, or other person having charge of said canal, may reduce the water above said mill-dam, provided the water at our said mill-dam shall not be reduced lower than the top or comb of our said mill-dam, which may be done by opening the waste-ways at the west end of said mill-dam, which shall be closed by said Superintendent as soon as said repairs

can be completed, and shall not be opened except for such repairs as aforesaid, nor remain open more than for the period of one

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week at any one time, without such compensation as may be agreed upon by any two persons to be selected by us for that purpose.

6065 We further agree to dismiss all suits now pending at our instance against said Board of Trustees in the Circuit Court of Will County, Illinois, and pay all costs of court that may remain unpaid at the time said suit or suits shall be dismissed.

In witness thereof the said Philo A. Haven and Orlando H. Haven have hereunto set their hands and seal this 22nd day of August, 1833.

PHILO A. HAVEN, (Seal)
by O. HAVEN,
His Attorney in Fact (Seal)
ORLANDO H. HAVEN (Seal)"

28 And that the sum of money mentioned in said agreement was paid and receipted for, said receipt being in words as follows:

"3,060.

Received, Lockport, Aug. 22d, 1853, from David Leavit Treas. for the Board of Trustees of the Illinois & Michigan Canal, by the hands of William Gooding, Secretary, the sum of Three Thousand and Sixty Dollars, in full, on settlement of our claim for damage against the Board of Trustees of the Illinois & Michigan Canal.

PHILO A. HAVEN,
by O. H. HAVEN,
His Attorney in Fact.
O. H. HAVEN."

It is further agreed that no evidence proving or tending to prove any other facts than as herein stated and referred to, to wit: Said maps were offered by either party on the trial of said cause; that the evidence offered was offered by each party hereto subject to such material objections thereto, except for matters of form as might be made; that this statement of the proofs and of the facts proved herein shall stand as and be signed by the court and filed in this cause as a proper and sufficient bill of exceptions in this case, and that no other or farther one shall be required, but that nothing herein

stated shall (should a re-trial be had of this case or of any other) prejudice the rights of either party to introduce on such trial farther, other or different evidence proving or tending to prove any different fact or facts.

29 It is further agreed that on such evidence and proof, the said court wherein said action was pending and tried, found the issues herein for the defendants, to which finding said plaintiff excepted and moved for a new trial in the said cause, which motion was by said court over-

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ruled, and thereupon said court rendered judgment against said plaintiff and in favor of said defendant for costs. And inasmuch as the matters and things do not appear of record, he tenders this as his bill of exceptions herein, and prays that the same may be signed and sealed and made part of the record in this case.

GARNSEY & KNOX,
Attorneys for Plaintiff.
G. D. A. PARKS,
Attorney for Defendant.

Certificate of trial judge.

6067 Here follows map shown on opposite page.

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ABSTRACT OF APPELLATE COURT RECORD.

6068 3 Order entered in vacation April 6, A. D. 1881, finding the facts in the case from the evidence.

4 The facts as found by the Appellate Court are set forth from pages 4 to 17 inclusive, and are simply a repetition of the agreed state of facts set forth in the bill of exceptions appearing in the abstract of the transcript of record from the Circuit Court.

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19 Opinion of Appellate Court, filed April 6, 1881, from page 18 to page 30 inclusive, recapitulates the facts as found by the Appellate Court, being the same as those agreed upon in the Circuit Court.

32 OPINION OF APPELLATE COURT.

Reported in 8 Ill. App., 72.

6082 The judgment of the court below reversed and judgment entered in this court in favor of the plaintiff below and against the defendants below for $800 and costs of this court.

Judgment accordingly.

47 Order granting appeal to the Supreme Court.

Appeal allowed for reasons set forth in order.

53 Certificate of clerk of Appellate Court.

6085 Assignment of errors.

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6087 BRIEF FOR APPELLEES IN APPELLATE COURT.

The record presents the following as the principal points for consideration:

First. Viewing the State and Adam, in the relation of upper and lower riparian proprietors on the Desplaines river, is the State guilty of a *diversion,* if it takes out above Adam's Dam no more water than it brings in from Lake Michigan through its own canal?

Second. Even if the State itself be supposed guilty of a diversion by the act of passing the water from the pool above Dam No. 2 down to the Channahon level on which the oat mill of the appellees is situated, and where it can by no possibility again become available to the appellant, whatever use is made of it, can the appellees Slater & Druly be sued as the responsible agents in the act of diversion, which is thus already

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irrevocably consummated by operations at the lock and dam above?

Third. Adam having purchased subject to the re-

6088 lease executed by his grantors in 1853, does that release operate to bar the action?

The first, as the court at once perceives is the principal question, and to that I shall devote my chief attention, the interest of both parties being to test the absolute discretionary right claimed by the Canal Commissioners, to lease the surplus water at Joliet, derived from Lake

Michigan, through the deep cut, in such modes as they find most profitable to the revenues of the canal.

I.

THE CASE SHOWS NO DIVERSION BY THE STATE.

The topographical features of the case are so clearly exhibited by the map accompanying the record, that I shall without further explanation assume the court to be cognizant of the relative localities involved in the controversy. The facts also that counsel on both sides deem essential to present the main point on which the decision of the court is desired, are brought within a very narrow compass by the agreed case. Nothing is left, therefore, but a question of law: If the water, which is the subject of the alleged diversion, is conveyed into the canal from Lake Michigan through the works and at the expense of the State, and constitutes no part of the natural and customary flow of the Desplaines river, can it be rightfully withdrawn again by the State on its own premises, if in doing so that natural and cus-
6089 tomary flow of the river is not diminished?

Perhaps the theory on which the appellees rely may be

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stated in the simplest and most convenient terms by casting the prominent facts into the form of a hypothetical case.

Let A. (the State) and B. (Adam) be upper and lower riparian proprietors on a given natural water course (the Desplaines river), which I designate as water course No. 1.

A., the upper riparian proprietor, happens to own or control another and entirely independent stream which we will designate as stream No. 2 (Lake Michigan) the waters of which, for certain purposes of his own, he desires to transmit beyond the channel of No. 1, by some suitable artificial structures, the particular method chosen being a question of judicious and economical engineering, adapted to the local conditions of the case.

The method which A in fact adopts is this: instead of crossing *directly* at the point where No. 1 is introduced into No. 2 he finds it expedient to cross at a point on his premises lower down, employing the channel of No.

1, for this distance as a temporary conduit for conveying the water of No. 2, to its destined exit, and then, by proper structures discharging this extra water into a channel of his own on the other side, prepared for it.

By this process the waters of the two streams are
6096 of course necessarily mingled together while thus flowing as an agent for the production of mechanical power and the rights of the parties in the division admit of certain adjustment on the basis of *equivalent quantities.*

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Let us further suppose that B, the lower riparian owner on No. 1, not only receives a full equivalent for his dues in the original flow, but *a much larger amount,* incidentally supplied from No. 2 in the course of the operation.

Question: By thus withdrawing from No. 1, the water which he has temporarily added to it is *A guilty of a diversion?*

A plain statement of the questions suffices to solve it. I am certainly but expressing what seems to be a self-evident proposition of natural justice when I say that A has a perfect right as against B to deduct from water course No. 1, by artificial channels the same amount of water which he conducts into it by artificial channels from No. 2 unless that right has been qualified by contract or prescription, which is not pretended in the case at bar.

This proposition I do not hesitate to affirm is an inevitable inference from the elementary principles, governing the relations between riparian owners.

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6106 THE CREATION OF WATER POWER WAS ONE OF THE OBJECTS CONTEMPLATED IN THE ORIGINAL PLAN OF THE CANAL.

An attempt is made by appellant's counsel, though it must be admitted not a very serious one, to show by referring to the several acts of the Legislature, under which the Deep Cut was finally completed, that the water thus obtained is not *bona fide,* genuine, legal canal water below the terminus of the Summit level.

Now, it is a matter of public history well known to the court, that the original plan of the canal was to supply the Summit level from Lake Michigan, precisely as

it is now supplied. Much of the work, in fact, has been done before the suspension of 1840. When the enterprise was resumed in 1845 under the trust created to secure the bondholders, the then embarrassed financial condition of the State compelled a temporary relinquishment of the original plan, and the substitution

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of what was termed the raised or shallow cut, to be supplied by pumps at Bridgeport and the Calumet feeder.

6107 In 1865 the City of Chicago found itself compelled to face the stupendous problem of drainage, for the public health and comfort, and deeming that its object could be effectually accomplished by completing the old deep cut already partially excavated, asked permission of the State to finish the work. Permission was given by the Act of 16th of Ajril, 1865, entitled: "*An Act to provide for the completion of the I. & M. C. upon the plan adopted by the State in* 1836." Besides this significant title the preamble to the act contains a brief reference to the past history of the improvement,—the original plan,—its abandonment "for the time being"—the precarious and unsatisfactory nature of the mode of supply from the Calumet feeder and hydraulic works at Bridgeport, and the great benefit to be expected by deepening the cut.

See Public Laws, 1865, p. 83-4.

The work accordingly was undertaken and was completed in 1871, at an expense of several million dollars, and the cost soon after refunded to the City of Chicago by the State.

It is necessary to argue the point which counsel suggest, based on the special circumstances that led to the improvement? Is it not enough that the improvement was in fact made? Is not the condition of the case essentially the same as if the work had been done in the first instance by the State instead of by the City of Chicago, and done in 1848 instead of 1871?

6108 RIGHT OF THE CANAL COMMISSIONERS TO CREATE AND LEASE WATER POWER.

But again, the counsel for appellant express a gloomy apprehension that it is hardly according to law for the

Canal Commissioners to create and lease water power to help support

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the canal. To sustain this view they have ransacked the canal laws *ab initio,* not forgetting the act of Congress of 1823.

To this somewhat odd position I reply:

1. That while navigation is the primary object of a canal, yet to create water power as an incident has been the universal policy of such enterprises when undertaken at the public expense or by private corporation. The disposal of the water control of the state, and the public good dictates, both that it should be utilized in aid of manufacturing interests, and that it should be made to contribute to the expense of maintaining the work. Such, at all events, has been the established policy on the Illinois and Michigan Canal, unquestioned for more than thirty years. No express statute indeed was required to make it a duty of the Canal Commissioners, in the vigilant fulfillment of their public trust, to thus add to their limited revenues, wherever they found it practicable. The details of administration in respect to this branch of their official duties, of course, are necessarily confided to their own judgment and discretion. Special occasions have arisen and may again arise for special
6109 legislative regulation on the subject, but the particular methods of creating and delivering power at any given place is a question for the Commissioners under the advice of their Chief Engineer.

2. The statute expressly gives them a general authority to lease water power.

R. St. (1874), p. 189.

The expression, 'and lands and lots connected therewith,' cannot well be construed as intended to exclude cases where the state happened to own no lands or lots adjoining the *locus* of the waterfall. Ordinarily such a connection would exist, but it would not where the site occurs on a school section, as here, or on Government lands. But unless the two subjects

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enumerated in the clause 'water power' and 'lots' are from their nature indissolubly conjoined together, they are to be taken distributively. We are to look at the

main leading design of the law; and that was to utilize the surplus water for the benefit of the state wherever possible.

3. But lastly the question is none of the appellant's business. If he is legally entitled to the water, the point is needless,—if he is not, its use by the Commissioners is no concern of his.

Is the Water Abandoned at Lockport?

It is contended, on the other side, that admitting the
6110 general principle under which we insist on the right of the state to draw out above the appellant's dam the water derived from Lake Michigan, yet it has no bearing on this case, for the reason that it applies only where he who asserts it is riparian owner continuously for the whole distance, including both the point where the extra water is introduced and the point where it is withdrawn; that here the state appears to own no land upon either bank of the Desplaines river between Lockport and its junction with the canal above Dam No. 1, and that the water being thus allowed to run into a foreign water course at a point where the state has no *status* as a riparian owner, it must therefore, be deemed to have been abandoned and incorporated for all subsequent legal purposes with the proper water of the river.

To this argument I reply that it somewhat misconceives the facts, and would be untenable if its facts were true.

The record shows that the Desplaines river was appropriated to the use of the canal as a *feeder* in the very beginning of the enterprise nearly fifty years ago. The appellant's grantors describe it as a feeder in their release. It has been

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so constantly used for more than thirty years. By what proceedings it was originally condemned or appropriated to public use and the rights of riparian owners subjected to this important easement does not appear, nor
6111 is it necessary now to inquire; for it has at any rate become perfect by *prescription.*

The state then by virtue of this easement has complete jurisdiction over the current and channel of the river,

for the general purpose of a feeder; as much so as if it were the riparian owner from headspring to mouth.

If it be said that this easement as a feeder is confined to the natural flow of the stream, and does not extend to its use for conveying water obtained from other sources, I reply that this mode of use has also been settled by prescription. Before the deep cut was finished, for more than twenty years before the surplus water from the Summit level, used at the mills at Lockport, had been conveyed to the lower level through the medium of this feeder.

And finally, the map before the court indicates that such a use must have been contemplated when the easement was first acquired. The juxtaposition of the Hydraulic Basin to the river, and the necessary use of its channel as a vehicle to receive and convey the water thence, demonstrate that this was a part of its intended purposes when originally appropriated as a feeder.

THE INTENTION OF THE STATE.

On the point under consideration, the first inquiry will be, I apprehend, what was the intention of the state? For it will be hard to maintain that a thing is effectually which the owner evidently intends to resume and control
6112 for future use. To "abandon," in the sense in which the term is here employed is to relinquish all future claim of property, or

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exclusive use, and to give it finality, wholly and absolutely to the public. But that confessedly is not true, in this case, in point of fact.

The whole plan of the canal is to be treated as a *unit* like a vast machine, and to be viewed all together; each part in its relation to every other part, however remote. The entire chain or system of structures composing the canal, from terminus to terminus, must be surveyed, moreover, in relation to the physical peculiarities of the region through which it passes; for the engineer is planning such a work must necessarily conform and adapt it to the contiguous country.

The relative course and comparative levels of the river and canal between Lockport and Joliet are clearly indicated on the map which the court has before it. These

local conditions, it will be perceived are such that the surplus water discharged at Lockport, through Norton & Co.'s tailrace and through the waste wier, pursues the channel of the river for a distance of about three miles, and then empties again into the canal between Lock No. 4 and Dam No. 1.

Now, how have the legal attributes of this water, with reference to the rights of the appellant been essentially changed? The plan of the canal as to the disposition of
6113 the surplus water, obviously contemplated this very mode of transmission from one level to another. The total fall between Lockport and Joliet is about sixty feet; and in that part of the canal which concerns this case, it will be seen, there are seven successive levels: 1st, the summit level; 2d, that between locks 1 and 2; 3d, between locks 2 and 3; 4th, between locks 3 and 4; 5th, between lock 4 and Dam No. 1; 6th, between Dams 1 and 2; 7th, the Channahon level.

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Into the Summit level Lake Michigan, by the recent improvement, supplies, as was contemplated in 1836, a large quantity of surplus water, estimated at about 25,000 cubic feet per minute, not needed for navigation, but very valuable to the State of Illinois and the manufacturing interests of Lockport and Joliet, for hydraulic purposes.

The plan of the canal within this distance affords four falls available to the state for water power—one at Lockport, leased to Norton & Co.; one at Dam No. 1, one at Dam No. 2, and one at Channahon level, a portion of which is leased to the defendants. Thus the same volume of water is repeatedly used on successive levels within a space of about four miles.

Recently the Canal Commissioners found that the surplus water at their disposal from the level above Dam No. 2, was such that after leasing all that could be leased to advantage at the dam, and after transmitting to the appellant more than double the amount he was accustomed to receive through his own pitiful stream before the deepening of the cut, there was still a large surplus that could be utilized most profitably, by the state, in the method exemplified in the case at bar, viz: by drawing it directly through openings from the canal itself, and then discharging into the river, but necessarily and unavoidably below the plaintiff's dam.

Thus it is apparent that no *intention* to finally abandon the water at Lockport can be inferred from the original design of the canal; and no such purpose, in fact is or can be imputed to the official agents of the state at any time. If an abandonment has occurred, it must be an involuntary one by the subtle operation of the mysterious technical rule of law, upon the bare fact that the surplus water instead of being transferred from one level to another between the banks of the canal itself, or through a race alongside constructed by the

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state, or through some ravine or natural depression in the ground owned or controlled by the state, is left to descend by the law of gravity through another kind of channel lying convenient for the purpose, to wit: the bed and banks of the Desplaines river, a water course already appropriated to the use of the canal as a feeder.

Is this an abandonment in any sense whatever?

6115 Let it be remembered there is no question here between the state and the riparian owners on the river between Lockport and Joliet. To them individually this influx of water from the canal may be a benefit or an injury according to the use they happen to make of their land. But whether a benefit or an injury, they assuredly have and claim to have no concern with the water after it again joins the canal, nor any joint interest with the riparian owners below the point of junction. The same thing must be true of them, as to all the riparian owners above.

As to *them*, it cannot be affirmed, for there can be no legal occasion to affirm, that this additional water is a part of the customary flow of the river, considered as a whole. And if not as to them, how can it be so described and claimed by a lower proprietor? It is *their* part of the channel and their part only which the state has been thus using uninterruptedly for now more than thirty years, as a convenient conduit to transmit the surplus water of the canal from the hydraulic basin in Lockport to the upper basin, as it is commonly called, in Joliet. If a detriment to them, they have not complained; if an advantage they have no reason to complain. They can be presumed to claim no right in the water, except this, that while passing through their possessions in its transit from one point to another of the canal, for ulterior use

by the state, they as an incidental necessity of the case, may and must enjoy the advantages of it.

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6116 And between themselves, doubtless, while the water is thus suffered to run, each lower proprietor as against those above him has a right to demand for himself the full, unobstructed enjoyment of the improved flow. But whatever the relation between the state and them or between themselves, these relations cannot rationally extend to effect one way or the other those above or below them.

The proposition of the counsel on the other side, then, is at last cut down to this:—that if A, in the process of transmitting the water of No. 2 from one side to the other of No. 1, compelled for a part of the way to use or does use a part of the channel of No. 1, which does not happen to belong to him as riparian proprietor, then and in that case, whatever his intentions the instant the water is poured into that portion of the channel; he can no longer pursue his exclusive claim to it and utterly loses his right to transmit it across for his own use on the other side. By force of some metaphysical principle of law, it becomes indissolubly annexed to No. 1, as a part of its "natural, customary and ordinary" flow, and B, and not only B, but C, D and E down to the very mouth of the stream, though contributing nothing to the expense of construction, repairs or operation, and though, not only not injured but in fact greatly benefited by its operation, as in this case, can come into a court of jus-
6117 tice, and, thanking A for nothing, claim the water he has been at so much trouble to secure, as their own.

On what principle of justice, intelligible to a judge, can such a claim be set up? In this age, courts, while strictly observing the mandates of positive law and adhering to established precedents, are not accustomed to favor technical notions tending to defeat manifest right; and the law of water courses, forms no exception in our jurisprudence.

This court, we think, will say to the appellant, what difference does it make to you, whether the land bordering on

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the river, in Secs. 22, 23 and 27, in the Town of Lockport, and Sec. 3, in the Town of Joliet, belongs to the State or

to individual proprietors? If the state owned the land, or had express permission from the owners to thus use their portion of the bed and banks of the river as a convenient conduit to convey the water of its canal from one point to another, you hardly pretend that you would have any reason to complain. What better reason have you, if without any formal grant, these owners have now for more than thirty years acquiesced in such a use without objection and without asserting against the state any adverse rights for themselves, by reason of it; or, if so, certainly without asserting any which concern you or were for your benefit, or have any possible regard to your interests?

6118 The fact, then, that this link of communication between the hydraulic basin, at Lockport, and the upper basin, in Joliet, into which the river discharges as a feeder, does not belong to the state is, I submit, quite immaterial to the argument. It is a circumstance affecting only and exclusively the relations between these particular intermediate owners and the state. In fact, for fully two-thirds of the way, as will be seen, the river runs through canal lands, which must be supposed to have been sold subject to the right of the state to the use of the channel. But those also who purchased from the Government of the U. S. must have done so after the plan of the canal connecting with the Desplaines river as a feeder was adopted, and with full knowledge of and reference to it.

If ever there was a case of prescriptive right, here certainly we find a right by prescription in the state to employ this section of the river channel as a connecting link between the two canal levels, for the purpose of transmitting the surplus water from one to the other.

It is a case strongly reminding us of the language employed in a decision already quoted: "It would be a harsh rule to require those engaged in these enterprises to construct

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an artificial ditch along the whole route through which the water was to be carried, and to refuse them the *economy that nature occasionally affords* in the shape of a dry ravine, gulch or canyon?"

6119 Without pursuing this head of the argument further, the counsel for appellees respectfully submits the following propositions as maintained:

1. That the appellant is only entitled as against the state to the natural and customary flow of the Desplaines river; and can only complain of a diversion in respect thereto.

2. That the surplus water derived from Lake Michigan, in 1871, is in no sense a part of this natural and customary flow, unless that character is impressed upon it by the circumstances that between the hydraulic basin at Lockport and the upper basin at Joliet, it is conveyed in the channel of the river, running by the side of the canal, and employed as a convenient conduit provided by nature, and presumably with the consent of the riparian owners.

3. That this accidental circumstance does not change the rights of the state in the water as the proper surplus water of the canal, because there was no *intention* to abandon its use, in the sense of any of the adjudged cases cited to support that position; but, on the contrary, a manifest intention to resume it for further canal use.

4. That the peculiar occasion on which the City of Chicago undertook to finish the canal according to its original plan, in no way affects the rights of the state in the ownership and control of the surplus water fur-
6120 nished by the deep cut.

5. That the general policy of canal administration, as well as the canal laws of Illinois, contemplate and require the leasing of water power, wherever it can be profitably developed as a source of revenue, whether with or without accompanying

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water lots. Hence, we contend there has been no diversion from the plaintiff by the state.

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II.

THERE IS NO RIGHT OF ACTION AGAINST THE APPELLEES.

This branch of defense, although inferior in public interest to the proceeding, is met in the record and cannot be passed over without notice.

The suit evidently is an attempt to escape the constitutional provision which prohibits the suing of the state, and also the statute which extends the same exemption to the Canal Commissioners.

R. St. Ch. 19, §3.

It has thus been declared the public policy of Illinois, that in controversies of this sort, between the state and individuals, if wrong has been done under the authority of the state, resort shall be had to the Legislature for relief. The appellant deemed this remedy rather unpromising and so has sued the lessees of the state, Slater & Druly. We think the action must fail for two reasons—one that the act of diversion was not committed by the appellees, and the other, that it is against public policy.

1. There has been no diversion by the appellees. The case shows that none was possible.

Abst., p. 1, Rec., 3.

The oat mill of the defendants is situated on the berm bank of the canal, about three-fourths of a mile below Dam No. 2; at which dam the water, that is not suffered
6122 to flow into the channel of the river and thence down to appellant's mills, is discharged into the Channahon level through the lock and a

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bulkhead, constructed for the purpose.

At this point the canal has entirely completed its crossing of the Desplaines river and from thence onward diverges into a separate and independent channel.

The instant the water leaves the pool of the dam and descends into the Channahon level it becomes forever detached from all relations of riparian rights with the river and the mill and dam of the plaintiff.

When it reaches a point opposite the defendant's mill, it can no more be identified or recognized as river water than at a point ten miles below or at Ottawa or La Salle. It is *pure* canal water, in a legal, though, it must be confessed, in no other sense.

The act of *diversion*, therefore, as an actionable injury, takes place and is consummated at Dam No. 2; for the act must consist in that operation by which the water, instead of being suffered to flow over the dam into the river channel and down to Adam's wheels, is irrevocably turned off in another direction.

In this operation, conducted as it must be by the functionaries of the state, in the official administration of the affairs of the canal, the defendants, of course, have and can have no responsible agency. The stage of water
6123 in the Channahon level from time to time, and the

methods of supplying it, are matters of exclusive official regulation.

The water being by this process already diverted, Adam, as a riparian proprietor, has no further concern with it. In its mere character as a physical substance he sets up no right to it in this suit; and he can assert no *usufructuary* right, except where it is found existing under such local relations to his mill, that *he* himself, could use it as motive power, if the appellees did not. But it is obvious that when the water has

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reached down to a point opposite their mill, it can be of no *benefit* to him in any possible event, and *e converso*, it can be no *injury* to him, if it is used by others. If, then, their use of it is no legal *injury* to him, how can it be denominated a diversion?

It seems too plan for serious dispute that the act of diversion, if any, is performed at the point where the road forks, so to speak, and is effected by the sole agency of the officers of the state, in the performance of their public duties.

If the place of the defendant's headgate, relatively to the plaintiff's mill was such, that, if not used by them, the water could be conceived as in some way available to *him*, the case would be very different. But such is not their relative position, as the agreed case and accompanying map clearly demonstrate.

6124 The appellant's only interest in the water, I repeat, is that of *user* for hydraulic purposes at his mill, and so the declaration expressly describes it. He asserts no right to it otherwise; and this usufructuary interest is only supposable under conditions which make it possible for *him* to use it. After it has passed down and out from these conditions, and is found in some place entirely beyond their range, it is altogether disconnected from the system of riparian rights pertaining to the Desplaines river.

2. The action was brought in evasion of our express and established public policy, in respect to controversies with the state, arising from the management of the canal by her official agents.

R. St., cited *supra*.

It is very distinctly a case coming within the reason

and spirit of this wise policy of the Government. Confessedly, it is

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a dispute between William Adam and the State of Illinois, involving the control, at Joliet, of the immense volume of surplus water which pours down from Lake Michigan through the deep cut. If Adam has been aggrieved, the state should pay the damage; and this constitutional and statutory provision, while thus taking the rights and liabilities of the State out of the jurisdiction of her judicial tribunals, contemplate that her Legislature will do him ample justice. To that resort, however inconvenient, he is confined.

6125 If the Canal Commissioners, who made the lease to the appellees, as the official agents and representatives of the state, cannot be sued, would the court tolerate a suit against the executive officers in charge of the canal, say the superintendent or the locktender, for faithfully carrying out the orders of the Board? If the principal officer is protected, in the disposition of the surplus water from litigation, will not his subordinates and employes also be protected? There can be no doubt of it, since otherwise the whole object of this public policy of the state would be practically defeated.

In analogous questions arising from the acts of ministerial officers in executing process, the rule is universal, that what is a justification of the principal officer will also justify his deputies and assistants.

2 Hilliard on Torts, p. 156.

The same principle of immunity extends to all officers acting for the state.

Gidley v. *Pulmerston,* 7 E. C. L., 438.

Hodgson v. *Dexter,* 1 Cranch., 345.

The consequence is, that, inasmuch as the diversion of the water by the officers of the state is by express statute declared

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to be not an actionable injury as to the state or her officers who may commit it, the lessees from the state, who, if sued at all, must be sued in the character of joint tort feasors with the commissioners, must and should share
6126 the like immunity. If the supposed cause of action is not a tort, but a claim against the state to be adjusted by

the General Assembly, then Slater & Druly, it would seem, cannot be joint tort feasors.

III.

THE PLFF'S CLAIM BARRED BY THE HAVENS' RELEASE.

A certain release from Adam's grantors, Haven & Haven, was put in evidence on the trial (Abst., 6), though not very strenuously pressed in defense, which, it was hoped, was invincible on other grounds. Nor is it now pressed strenuously; for, if either of the two preceding propositions shall receive the assent of the court, the point of the release becomes one of little or no practical importance. A few words, therefore, upon it, will suffice.

In the plan of the canal, the Desplaines river had been taken as a feeder at a point above the Havens' mill. In 1848, by an appropriate legal proceeding, the Havens claimed damages for diversion.

Canal Trustees v. *Haven*, 5 Gil., 548.

After considerable litigation, the case was finally compromised, and the release in question executed for a consideration of $3,060.

On the trial of this cause in the court below, it was urged against the release, when interposed as a bar to the suit by Adam, a grantee from the releasors, that it only gave to the Canal Trustees and the state the right to

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use the water of the river strictly for the purposes of *navigation*, as contradistinguished from water power.

6127 But is it certain that this restricted construction is the true one? The intention of the parties is to be gathered from the whole instrument, the surrounding circumstances, and the nature of the subject matter.

By these lights is it not more fair to suppose, that the real, substantial design was to release to the trustees the rights of the Havens in the entire flow of the stream for *general* canal purposes? True, that in one place the expression "for the purpose of navigation" is employed. But immediately following we find these other words—"in the same manner the water in said river in connection *with other feeders* is now used for supplying said

canal." Was it not the leading idea, that it was to be turned over to the trustees to be used as a feeder, just like any other *feeder* supplying the canal?

The principal purpose of every canal, no doubt is navigation; and water power is only an incident. Hence, in an instrument of grant or release, the principal object might and naturally would be named, without, however, necessarily raising the presumption that it was meant to exclude that which was usually connected with it as an incident. If in this case the Desplaines in 1853 had a capacity to fully supply the wants of navigation, and a surplus besides, perhaps a doubt might arise whether the grantors did not intend to restrict their grant to the quantity required for the specific object of navigation. But in truth the Desplaines *per se* was and is a most in-
6128 significant stream, a mere rill in the summer season. There was no time when the state could not for navigation purpose command the whole volume of its discharge. Nor was the state under any obligation to maintain any other particular feeder, either the Calumet or the pumps. Its discretionary power to construct and alter its own works

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could not have been intended to be tied up in that way. The instrument cannot be construed as importing a binding condition, that the state should continue forever the particular system of supply then happening to exist, if it should be found expedient afterwards to change it for the public interest.

And, if such was the true construction, it would not much help the appellant. It certainly was an incidental object of "the other feeders" to which this feeder was assimilated, to furnish water for hydraulic purposes as well as for navigation purposes.

If, then, the Desplaines was placed on the same footing with the other feeders and made to subserve the same general objects, how can the construction suggested be upheld?

In conclusion of the whole case, it is now respectfully submitted to the court that the following propositions have been maintained on the part of the appellees:

First. That the Canal Commissioners have not been guilty of diverting any water, to which the appellant was

entitled as a lower riparian owner on the banks of the
6129 Desplaines river.

Second. That there has at all events been no diversion by the appellees, justifying an action against them.

Third. That if there has been a diversion from the customary and natural flow of the Desplaines river, such case was authorized by the Havens' release.

G. D. A. PARKS,
Atty. for Appellees.

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6131 IN THE SUPREME COURT OF ILLINOIS,

NORTHERN GRAND DIVISION,

September Term, A. D. 1881.

Wm. M. Druley,
Appellant,
vs.
William Adam,
Appellee.
} Appeal from the Appellate Court of the Second District.

BRIEF AND ARGUMENT FOR APPELLANT.

SYNOPSIS OF THE CASE.

This was an action in the common form brought in the Will Circuit Court by Adam, the appellee, against Druley, the appellant, and one Slater for a diversion of the water of the Desplaines river from the plaintiff's mill. Judgment having been rendered for the defendants, by the Circuit Court, to which the cause had been submitted for trial, without a jury, an appeal was taken to the Appellate Court; and, as the substantial facts were not disputed, they were embodied by stipulation of counsel in an agreed case. By this it will appear, that the main defense set up was two-fold, 1st, that there had been no diversion of the proper waters of the Desplaines river to which the riparian rights of the plaintiff related; 2d, that if there had been such diversion, yet, the act effecting it was not in any natural

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or legal sense the act of the defendants; but was exclu-

sively the act of their lessor, the State of Illinois, done by her official agents, in the regular and authoritative administration of the business of the canal.

The Appellate Court having reversed the judgment of the court below, and rendered a judgment for damages against the defendants, the case has been brought here upon a certificate of the judges in due form, setting forth specifically the questions of law involved, and declaring, that they are of such importance, as that they should be passed upon by this tribunal of last resort.

The principal facts of the case are these:—The Illinois and Michigan Canal crosses the Desplaines river at Joliet. This crossing is effected, as the map attached to the record indicates, by passing the unappropriated waters of the river, mingled with those of the canal through two basins, for a distance of about a mile, and at last discharging them again into the natural channel, over the lower dam, designated as Dam No. 2. Adam's mill is situated on the east bank of the river, about a third of a mile below this dam.

When the canal leaves the river at Dam No. 2, it pursues a southwesterly direction, diverging gradually more and more from the river, this being known as the Channahon level. On this level, and about half a mile *below*
6133 Adam's mill dam, the defendants in 1878 erected an oat mill on the berm or westerly bank. The Canal Commissioners had discovered, that by simple and not very expensive structures, a valuable water power, promising to yield a considerable addition to the revenues of the canal, might be developed in this quarter of the town of Joliet; and accordingly made to Slater & Druly a ten years' lease of sufficient water to run their mill, under which leave the defendants proceeded to put their enterprise into operation. Their establishment is situated nearly a mile below Dam No. 2, where the river and canal part company. It is

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for this water, thus drawn from the canal, at a point far below the plaintiff's mill, and far below Dam No. 2, that the action was brought against them as lessees of the state; Adam not choosing to make his contest directly with the state herself.

It has never been, and of course cannot be pretended that the surplus water in question is to be described as

any part of the natural and customary flow of the Desplaines river; if by that expression is meant the flow derived from its natural source and affluents in the watershed which it drains. The Desplaines is in truth a very insignificant stream, never of much use as a feeder in the season when its services are most needed, and, except as reinforced by contributions from the canal, affording sites only, for what are sometimes denominated
6134 "thunder shower mills."

In 1871, when the summit level from Chicago to Lockport was finished on the original Deep Cut plan, which the pecuniary embarrassments of the state had for so many years suspended, drawing its supply directly from Lake Michigan, as the fountain head, the Canal Commissioners found themselves in possession on the summit level of a vast surplus of water, tenfold beyond what was required for navigation. The question then met them, how they could best utilize it for the canal revenues and the public good?

From Lockport to Joliet there is a fall of about fifty feet, divided into five levels. If, as we must for the present venture to assume, although questioned by the Appellate Court, this surplus water rightfully belonged to the canal and was subject to the control of its officers for all legitimate canal purposes, it was manifestly the duty of the Commissioners to make the most profitable disposition of it, possible under the circumstances. If susceptible of repeated use, it seemed to be as manifestly their duty to avail themselves to the utmost of this accidental advantage. How was this to be done? How were they to preserve for repeated use at successive falls the pro-

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prietary rights of the state in the water? It could not, at least but a small portion of it could be conveyed through the channel of the canal itself from Lockport to Joliet. To excavate or construct another channel by its side as a
6135 sort of race or conduit for that sole purpose would be absurd. Nature, however, it was seen, had provided a convenient medium in the channel of the Desplaines river just alongside; and by this, the surplus passing through the spillways and mills at Lockport, could be, as it always had been, transmitted, till it again reached the canal, in what is called the "upper basin" above Dam

No. 1. No question has ever been made in regard to the local rights pertaining to this body of water, as between the state and any other interests concerned in it, till we come to Dam No. 2. Here the battle begins. At this point the Canal Commissioners assert the right of the state to pass this immense volume of water received into the summit level from the lake, or so much of it as they find profitable to their revenues, into the level below, instead of allowing it to flow over the dam into the channel of the river, for the plaintiff's benefit.

The main issue thus becomes apparent to the court. Does this surplus water belong to the State of Illinois or to the appellee? Is it in any sense to be recognized under the circumstances of the case, as a part of the *customary* flow of the Desplaines river?

Treating the state and Adam as occupying substantially the mutual relation of upper and lower riparian owners on the river, is the state, as the upper owner, entitled to take out again what it has brought in, from
6136 Lake Michigan by this recent improvement? By using the Desplaines as a conduit for a part of the way, has the state, in relation to this lower riparian owner, irretrievably lost its proprietary rights in this volume of water, thus conveyed to Lockport through its own works from its own reservoir? Viewing the canal from Chicago to Joliet as one connected system of structures de-

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signed for the conveyance and disposition of the water derived from the lake, and considering it as a necessary consequence of that plan, that the water discharged at Lockport should be again restored to the canal in the upper basin, can the official agents of the state by the fact of employing this convenience of transmission from one level to another, be supposed to have *abandoned* this valuable surplus, with respect to any proposed future exclusive use of it? If it be conceded, as it must, that there was no real *intention* on the part of the canal officers to relinquish the proprietary rights of the state in the future disposition of the water, does such a result follow, nevertheless, from the circumstance, that for a part of the way, the state, instead of having drawn the water continuously through the canal or through some other channel, of which she is sole proprietor, has seen fit to avail herself of an obvious "economy of nature," as a

California judge expresses it; and suffered it to flow for
6137 a short distance through the channel of the river?

These are the questions of greatest interest in the case; yet there are others embraced in the certificate of the Appellate Court which will demand attention.

It was argued in both the Circuit and Appellate Courts, on behalf of the defendants, and will be again insisted on here, that after the water had passed down into the Channahon level, and was found under such local conditions in relation to the plaintiff's dam, that *he* could by no possibility use it to propel his machinery, it was as much detached from the system of riparian rights appertaining to the Desplaines river, as if it had reached the very *terminus* of the Channahon level, ten miles below, or Morris or Ottawa. This being so, the act of the defendants in making use of water found opposite their headgates, which had already flowed down below the plaintiff's dam, and thus found there by no responsible agency of theirs, could be no actionable diversion on their part; and the cause of complaint if

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any, was exclusively against the state or the Canal Commissioners.

There are still other points, to which the opinion of the Appellate Court has challenged the earnest attention of counsel; but which are not deemed necessary to now introduce to the notice of this court in this short preliminary view.

6138 BRIEF.

I.

NO DIVERSION BY THE STATE.

No diversion can be charged against the state; because, the surplus water in question is to be regarded as the proper water of the Illinois and Michigan Canal, and in no sense a part of the water "*accustomed*" to flow in the Desplaines river, on which the appellee, William Adam, is a riparian proprietor.

1st. A lower riparian owner, on a natural water course, is entitled and only entitled to receive, from the proprietor above the PROPER, NATURAL AND CUSTOMARY flow

of the stream, unimpaired in quantity and in the conditions of fall necessary to make it reasonably useful to him.

Ang. on Water Courses, Sec. 95, *et seq.*

Plumleigh v. *Dawson*, 1 Gil., 544.

Evans v. *Merriweather*, 3 Scam., 492.

This doctrine is expressed in the maxim of the civil law, "*aqua currit et debet currere, ut currere solebat.*"

Belknap v. *Belknap*, 2 Johns. Ch., 463.

6139 2d. The proper, natural and customary flow of water in a natural water course must be defined in general terms, as that

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body of water which issues from its natural sources and affluents, in the watershed that it drains.

Ang. W. C., Sec. 4, *et seq.*

3d. If an upper proprietor A, increases the volume of water by artificial means, from a reservoir of his own, as in the case at bar, and permits it to pass unreclaimed, below his own limits, then, as between the lower proprietors B & C, C may justly insist, that he is entitled to the benefit of the increased flow, and that B ought not to divert it from him.

Ang. W. C., Sec. 95.

4th. A riparian proprietor, owning on both sides of the stream, is to be deemed the perfect and absolute owner of its bed, banks and channel, subject only to the right (familiarly if not with strict propriety termed an *easement*), in favor of his neighbors below; that although he may make use of the water *ad libitum* and even alter wholly the course, dimensions and character of the channel within his own limits, he shall at last deliver to the servient proprietor unimpaired the natural flow which he had received from those above him. This is stating the rule in somewhat stronger terms than is strictly correct, but still with sufficient accuracy for our present purpose.

6140 Ang. W. C., Sec. 5.

Buckingham v. *Smith*, 10 Ohio, 288.

Trustees, &c., v. *Dickinson*, 9 Cush., 547.

Brace v. *Yale*, 10 Allen, 443.

2 Bouvier's Institutes, 174.

5th. The rights of the power proprietor, B, being thus confined to the customary, proper and natural flow of the

stream, derived from its head springs and affluents, he has no legal concern, not the least, in the use which A may choose to make of his own section of the channel. This proposition can hardly be stated too broadly. And on the same principle it

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also follows, where the case is not affected by prescription, contract, or other special conditions, that if A, for his own private purposes, conducts water into the stream from an exterior source, to which B is a stranger, he, (A), may again deduct an equivalent quantity, provided in doing so he does not interfere with the rights of B; and provided also, he has done nothing, and suffered nothing to take place, amounting to an *effectual* abandonment to public use.

Whittier v. *Cacheco Mfg. Co.*, 9 N. H., 454.
Soc'y for Mf'g. v. *Morris Canal Co.*, Saxton (N. J.), 157.
Butte v. *Vaughn*, 11 Cal., 143.
Burnett v. *Whitesides*, 15 Cal., 35.
6141 *Elliott* v. *Fitchburg R. R. Co.*, 10 Cush., 191.
Embury v. *Owen*, 6 Exch., 360.
2d Washburne on Real Property, 329.
Hoffman et al. v. *Stone et al.*, 7 Cal., 46.

6th. The water discharged at Lockport from the tail-race of Norton's Mills, and the spill way, is in no legal sense *abandoned*, nor the right of the state to its future use relinquished, by reason of the fact, that it happens to pass from one level to another through a medium exterior to the prism of the canal, instead of directly between its walls, or through some other channel exclusively owned by the state. It is sufficient, that it in fact *does* rejoin the canal and *does* return to a condition of *statu quo*, long before reaching the dividing line between the state and Adam; and it is of no practical or legal concern to *him*, what may have been the particular mode or conditions of transmission at some remote stage in its passage.

Hoffman et al. v. *Stone et al.*, 7 Cal., 46.
Butte v. *Vaughn*, 11 Cal., 143.

7th. The water supplied to the summit level through the

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deep cut belongs to the canal, and is within the jurisdic-

tion of the commissioners, in the same sense and to the same extent, precisely, as the water found in any other of the several levels. The motive causes and history of the improvement are quite immaterial here.

6142 Its supposed benefit to the drainage of Chicago, as an incidental consequence of its flow into and through the canal, cannot affect its ultimate *status* as *pure* canal water, pure at least in a legal sense.

Pub. Laws, 1865, 83.

8th. It is the duty of the commissioners, as well with a view to revenue for the support of the canal, as to incidentally promote the manufacturing interests of the country traversed, to develop, husband and utilize water power to the utmost, wherever they can do so. The statute indeed expressly recognizes and enjoins this duty.

R. S., Ch. 19, Sec. 8, Clause 6.

II.

NO DIVERSION IMPUTABLE TO THE DEFENDANTS AS LESSEES FROM THE STATE.

If, however, a diversion could be charged against the state by this act of turning off the water in question through the bulkhead in Dam No. 2 into the Channahon level, it thereafter becomes finally separated from all connection with the Desplaines river, and from the entire system of riparian rights and duties appertaining thereto. Being thus for future purposes, indistinguishably incorporated with the proper water of the canal, and having passed under such local relations with reference to the appellee's mill, that *he* could by no possibility

6143 use it, to turn his own wheels, its use by Slater & Druly can

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not be described as a diverting—by them—from him—of the waters of the Desplaines river.

Parker v. *Griswold*, 17 Conn., 288.

The claim, if any there be, as against the State of Illinois, for an injury done to a private citizen by its official agents, and to be redressed, as the constitution and the laws direct, by the justice of the Legislature; since no

suit is permitted to be brought against the state or the Canal Commissioners.

Const., Art. IV, Sec. 26.

R. St., Ch. 19, Sec. 3.

If the alleged injury is not an actionable tort against the state or commissioners, from considerations of public policy, but left to legislative remedies alone, it ought not to be chargeable in law against the defendants as joint tort feasors with the canal officers; and the present suit, as being in palpable evasion of the spirit of the statute and constitution, ought not to be sustained.

Jermaine v. *Wagner,* 1 Hill (N. Y.), 284.

Hilliard on Torts, Vol. 2, 155-255.

Main v. *McCarty,* 15 Ill., 441.

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III.

THE HAVENS RELEASE.

1st. The appellee, Adam, bought subject to the perpetual release of damages executed by Philo A. and Orlando H. Haven to the canal trustees in 1853. This release was intended to confer upon the trustees a plenary and unlimited control over the Desplaines as a feeder, to the same extent as could be supposed of any other of its feeders; the releasors

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making their riparian rights entirely subordinate to the public demands.

Ang. W. C., Sec. 228.

This broad view of its import and intention is rendered probable by the consideration that even on this basis the compromise was one highly advantageous to the Havens; inasmuch as this court had recently decided, that their mill privilege was really of no value save as a sort of dog in the manger, to annoy the trustees with mere technical causes of action and barren claims for nominal damages. We specially invite the attention of the court to

Canal Trustees v. *Haven,* 11 Ill., 554.

2d. But whether the release was or was not a complete bar to the action as suggested, the acceptance of the release by the trustees can upon no principle of construction be held as any recognition of the right of the Havens to claim recompense for that portion of the water

6145 which had been furnished by the trustees themselves, in the surplus discharge at Lockport.

So shocking an inference is forbidden by every rule:

"a"—Grants are to be construed most strongly against the grantor. Ang. W. C., Sec. 149 "f." *Alton* v. *Trans. Co.*, 12 Ill., 38.

"b"—But when even express grants are made by the state, the rule is reversed, and they are to be construed most favorably for the government. *People* v. *Brown*, 67 Ill., 438.

"c"—The release nowhere speaks of any water, but such as strictly pertained to the Desplaines river, as a part of its proper, natural, original and customary flow. Rec.,

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p. 26.

"d"—In the legal proceedings of which the release purported to be a final adjustment, it does not appear, from the reports, that there had ever been any pretense of a legal claim by the Havens to a drop of this surplus water, as entering into their estimate of damages against the trustees. So impudent and preposterous a claim was not thought of.

3d. The release, at all events, is to be construed with reference only to the facts and circumstances surround-
6146 ing the parties *at the time*. *Wilcox* v. *McGhee*, 11 Ill., 381; *Hadden* v. *Shoutz*, 15 Ill., 582.

The Deep Cut, which, by a remarkable and unlooked for train of causes, was accomplished eighteen years afterwards, pouring 25,000 cubic feet of water per minute into the canal, was not then in the remotest contemplation of anybody. Even if it be supposed, that in 1853, in this settlement with the Havens, the canal trustees, to buy their peace, chose to ignore the distinction of right between the natural flow of the Desplaines river, and that much larger flow which they themselves at that time added at Lockport, still it is impossible to believe that by paying three thousand dollars for a grant of the river as a feeder *to* the canal, they intended at the same time to *make* a perpetual grant of the canal as a feeder *to* their

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river.

ARGUMENT.

The certificate from the Appellate Court will be found to indicate substantially the following as the principal points for consideration, stating them in a condensed form:

First. Viewing the State of Illinois and Adam, as standing in the relation of upper and lower riparian proprietors on the Desplaines river, is the state guilty of a *diversion,* if it takes out above Adam's dam a portion of the water which it brings in from Lake Michigan?

Second. Even if we suppose the state to be guilty of
6147 a diversion, by passing the water from the pool above Dam No. 2 down into the Channahon level on which the oat mill of the appellant is built, and where the water can by no possibility again become available to the appellee, can Slater & Druly be regarded as the responsible agents in this act of diversion, thus already consummated, by an operation of public authority at the lock and

Third. Adam having purchased subject to the release executed by his grantors in 1853, does that release operate to bar the action?

Or, on the other hand, does the mere acceptance of it by the canal trustee now bar the state from asserting as against the appellee an exclusive right to dispose of this *additional* volume of water obtained through the Deep Cut?

The first is the principal question, and to that we devote our chief attention; the interest of both parties and the public being to test the validity of the absolute right which the Canal Commissioners have deemed it their duty to assert, to lease the surplus water at Joliet, supplied by the recent improvement, in such modes as they find most productive of revenue and most

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conducive to the public good. Was the Deep Cut, in other words, made for the benefit of William Adam or the State of Illinois? Is the water it supplies a monop-
6148 oly to be enjoyed by the owner of Lot 1, Block 57, School Section, Joliet, or may its benefits be distributed to other localities in the town?

I.

THE CASE SHOWS NO DIVERSION BY THE STATE.

The main topographical features of the case are shown on the map accompanying the record, and we shall assume the court to be sufficiently advised of the relative localities involved. The facts also that are deemed essential to present the points, on which the decision of the court is sought, are drawn within a narrow compass by the agreed case. Nothing is left, but a question of law. If this water, which is the subject of the alleged diversion, is conveyed into the canal from Lake Michigan, through the works and at the expense of the state, and constitutes no part of the customary flow of the Desplaines river, can it be rightly drawn out again by the state, if done on her own premises; and if in doing so the natural flow of the river to Adam's Dam is not diminished but largely increased?

Perhaps the theory on which the appellant relies may be best illustrated by casting the prominent facts into the form of a hypothetical case.

Let A (the state) and B (Adam) be upper and lower riparian proprietors on a given natural water course (the Desplaines river), which we will designate as water
6149 course No. 1.

A, the upper proprietor, happens to control another and entirely independent reservoir, designated as No. 2 (Lake Michigan), the waters of which, for certain purposes of his own, he

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desires to transmit across the channel of No. 1, by some suitable structures, the particular method being a mere question of judicious and economical engineering, governed by the local conditions of the case.

The plan which A in fact adopts is this: Instead of crossing *directly* at the point, where No. 1 is introduced into No. 2, by an aqueduct or by subterranean pipes, as we will suppose he might, he finds it expedient to cross at a point on his premises somewhat lower down, employing the channel of No. 1, as a temporary conduit for conveying the water of No. 2, to its destined point of exit, and there, by proper structures discharging this extra water into some channel of his own on the other side, which he has prepared for it.

By this process, the waters of the two streams are necessarily mingled together, while thus flowing in the joint or common channel, and are, of course, incapable of identification. But in the case supposed, the water is treated simply in its character as an agent for producing mechanical power, and the rights of the parties obviously admit of perfect adjustment on the basis of *equivalent quantities.* One cubic foot of water is as good as an-
6150 other cubic foot of water upon a water wheel; and the element of identity therefore is to be dismissed from the argument, as of no essential value.

Question. By thus withdrawing from No. 1 the water which he has temporarily added to it, is *A guilty of a diversion?*

A plain statement of the question comes little short of answering it. We certainly but express what at first blush seems a self-evident proposition, when we say, that A must possess a perfect right, as against B, to deduct from water course No. 1, by artificial channels the same amount of water which he has added to it by artificial channels; unless that right has been qualified by contract or prescription.

This proposition, we submit, is an inevitable inference from

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the elementary principles governing the relations between riparian owners.

First. Subject only to the reciprocal rights in the flow of the water existing between the dominant and servient estates, each riparian proprietor is the owner of the bed and banks forming the channel of a water course as absolutely to all intents and purposes, as he owns his farm upon its borders; and he may use it with precisely the same perfect and unqualified rights of dominion.
6151 No one can call him to account for such use, save only in respect to the water which flows upon, through and from his land. This doctrine is too familiar to need the support of authorities.

Second. The law of riparian rights to which A, the upper owner, is subject, simply demands that he shall transmit to B, the *natural, proper and customary flow* of the stream, as he receives it from his neighbor above. And to that extent only is B at all concerned in A's part of the channel.

The general principles also, we presume, will not be disputed, and we only refer as a good, short statement of them to Broom's Maxims, 374.

It follows, of course, that B has no possible concern with the question how A chooses to use that portion of the channel which is within his own domain, any more than with the question how he might choose to subdivide, enclose or cultivate his fields. He, at all events, sustains no real, and as we humbly suppose, no *technical* injury, if A withdraws by a train of suitable structures what he has thus introduced from an exterior source.

It seems, indeed, too plain for argument, that no right of B is impaired, unless the dogma (for so we must call it), can be supported, that the instant a drop of water
6152 is added to the volume of No. 1, it becomes an inseparable constituent part of it, with relation to the rights of B; no matter at what place, in what manner, by what party, or for what purpose the addition

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was made. The notion, surely, has no foundation in natural and rational justice; and, is warranted, as we believe, by no well considered authority.

In such a case, A's *intention* will be found a controlling and decisive consideration. If indeed he *intends* his contribution to No. 1, as a *permanent* addition to its flow, and not, with a view to resume it for some ulterior use of his own, then perhaps there are two or three decisions squinting towards the rule, that even *he* cannot divert it afterwards, though on his own land.

Eddy v. *Simpson*, 3 Cal., 249.

Webb v. *Portland Mfg. Co.*, 3 Sumner, 189.

Tourtelotte v. *Phelps*, 4 Gray, 370.

So if A adds extra water to No. 1, which he suffers to flow down in the channel and *abandons* to the public, in that case, as between B and those below *him*, say C and D, these still lower proprietors, might as against B, rightfully claim, that he should not divert it, from them. It cannot be doubted that it is in this sense, Angel says:

"It is also important to observe, that as each proprietor through whose land a water course passes has a right to the flow and descent of the water course, sub-
6153 ject to a like reasonable use by all others, *he necessar-*

ily enjoys the benefits of any improvements made by the proprietors above him."

Ang. Wat. Courses, Sec. 95.

We believe, however, there are no well considered decisions which hold, that when A employs that part of the No. 1, belonging to him, simply as a convenient medium for transmitting the waters of No. 2 across into a channel which he has provided for his own purposes on the opposite side, B, as against A, acquires any legal right whatever in such extra water. There is not the slightest resemblance between the relations of A and B, and B and C in such a case.

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In support of our proposition we refer to

Whittier v. *Casheco Mfg. Co.,* 9 N. H., 454.
Soc'y for Mfg. v. *Morris Canal Co.,* Saxton, 157.
Butte v. *Vaughn,* 11 Cal., 143.
Burnett v. *Whitesides,* 15 Cal., 35.
Elliott v. *Fitchburg R. R. Co.,* 10 Cush., 191.
Embury v. *Owen,* 6 Exch., 360.
2d Washburne on Real Property, 329.
Hoffman et al. v. *Stone et al.,* 7 Cal., 46.

The leading authority supposed to hold the contrary is *Eddy* v. *Simpson,* 3 Cal., 249; the only case cited in that view by Washburne in the edition of his work on Easements, to which the writer has had access. If to be so construed, we shall soon see that it has been completely
6154 overruled by later decisions of the same court.

In the case of *Hoffman* v. *Stone, supra,* the water course, answering to No. 1 in our hypothesis, was named Dutch Gulch. It was dry at certain seasons of the year, but, nevertheless, was by the court treated as a natural water course, on which plaintiffs and defendants held the relation of upper and lower riparian proprietors.

Ang. Water Courses, Sec. 4.

The defendants, it appears, owned a chain or system of artificial ditches for the supply of which it was convenient to use channel of Dutch Gulch as a connecting link. Under this plan, they took out in the end, the water they put in, so that it did not reach the plaintiffs. The plaintiffs alleged this to be a *diversion;* and sought relief by injunction, claiming the rights of prior locators, and the exclusive control of the channel. The court, however held, in substance:

1st. That defendants (A) might use the channel of No. 1, to pass the waters of No. 2 from one point to another.

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2. That the defendants (A) did not *abandon* the water to the use of No. 1; as it was evident that they put it in with the express purpose of taking it out again.

3. That while the physical conditions under which the rights of riparian owners in California existed were peculiar, yet they were regulated by no local statutes, and
6155 were entirely governed by the rules and analogies of the common law.

This decision, as the court will see, proceeds upon the theory of natural and rational justice which we have assumed, viz., that B in any case is only entitled to the *natural* and *customary* flow of No. 1; that A may use the channel for his own convenience in any way he sees fit; and may, in entire consistency with the rights of B, again draw out the water which by artificial means he has put in for his own purposes, by his own structures, and at his own expense. In California, it would seem, that priority of location on government lands is held to give to the riparian proprietor some superior right in the channel and water of water courses. Such priority, if we mistake not, was enjoyed by the plaintiffs in all the California cases we have cited. But this, it is obvious, only serves to strengthen the force of the decisions as authorities in our favor.

The case of *The Butte Canal and Ditch Co.* v. *Vaughn, supra,* was an appeal to the Supreme Court of California, and was an action brought by the plaintiffs for the diversion of the waters of the south fork of Jackson Creek in the County of Amador. Defendant in his answer set up a right to a portion of the water, by virtue of a contract with the owners of the Amador County
6156 Canal, which drained the north fork of the Mokelumme river. From this canal the water claimed by defendant was emptied into a natural ravine, and from thence flowed into the south fork of Jackson Creek, above the dam of plaintiff, and after descending the stream for a mile, was again

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taken up at a point above plaintiff's dam, and diverted through defendant's ditch to his mining ground.

The opinion of the court was delivered by Mr. Justice FIELD, who after reciting the above facts proceeded as follows:

"Upon these facts the single question is presented whether the defendants, after the mingling of the water conducted by them from the canal with the waters naturally flowing in the fork, possess the right to take out an equal or less quantity from the stream, or is the right of the defendants to the use of the water, whilst in the ravine, or to the use of an equal quantity, lost by its subsequent mingling with the natural waters of the fork?

The case is similar in its material features to that of *Hoffman et al.* v. *Stone et al.*, 7 Cal., 45, where this court per MURRAY, C. J., said:

The plaintiffs, being the prior locators, it would follow that any interference with the waters of Dutch Gulch would be an infraction of their rights. But the appropriation of the waters did not give them the exclusive use of the bed of the stream. We see no reason why it might not be used by others as a channel for
6157 conducting water, so long as it did not interfere with their rights. If the defendants were diverting the *natural* water of the stream as well as that brought into it by themselves, then the plaintiff would have a just cause of complaint."

Justice Field then proceeds:

"In the case at bar the channel of the south fork of Jackson Creek is used as a connecting link between the Amador County Canal and the ditch of the defendants.

* * * * *

The point settled in the case of *Hoffman* v. *Stone* is this: That the prior right to the use of the natural water of a stream does not entitle the owner of such right to the exclusive use of the *channel. So long as his right is not interfered*

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with, there is no reason why the bed of the stream may not be used by others as a channel for conducting water. If the plaintiffs in the present case receive their full supply, as previous to the introduction of water by the defendants, they have no cause of complaint.

* * * * *

The plaintiffs rely, with apparent confidence, upon the case of *Eddy* v. *Simpson*, 3 Cal., 249, but in that

case the court said when the waters of Grizzly Canyon and Bloody Run left the possession of the defendants at Cherokee Corrall, all right to, and interest in that water
6158 was lost by the defendants. It might be made the property of whomsoever chose to possess it.

* * * * *

It is very evident that the court considered the fact that the water had passed from the possession of the defendants, and found its way to Shady Creek, without their agency, as material circumstances of the case; in other words, it regarded the water as having been *abandoned.*

* * * * *

The first appropriator of the water of a stream passing through the public lands in this State, has the right to insist that the water shall be subject to his use, and enjoyment, to the extent of his original appropriation. To this extent his rights go, and no farther. In subordination to these rights subsequent appropriations may make such use of the channel of the stream as they think proper, and they may mingle with its waters other waters, and divert an equal quantity, as often as they choose.

The judgment of the court below must accordingly be reversed, and the case remanded."

This opinion by Justice FIELD, now of the Supreme Court of the United States, it cannot be denied fully recognizes the doctrine we contend for; not under peculiar California stat-

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utes, not upon any anomalous principles of justice grow-
6159 ing out of the physical peculiarities of that State, but upon the plain analogies of the common law.

He refers, as will be noticed, to the case of *Eddy* v. *Simpson* (cited in Washburne on Easements as holding a contrary doctrine); and without very emphatically approving that case, distinguishes it from the one in hand by the circumstance, that the defendant claiming to have brought in water from an extra source, No. 2, was there held to have *abandoned* it to public use.

These decisions, unless we entirely misapprehended them, settle, the main question involved in the case at bar, and that, too, upon common law principles. The physical conformation and peculiar industries of Cali-

fornia, have no doubt presented cases of this kind for adjudication oftener than any other region of the Union; yet, the question has been in every instance argued and decided substantially upon common law principles, unmodified by any special legislation, precisely as was done in the New Hampshire, Massachusetts and New Jersey cases which we have cited. The court in *Hoffman* v. *Stone,* declared expressly that it acted upon the analogies of the common law, unaided by any statutory regulations. Indeed its ruling in every instance was simply an application of universal principles of natural reason and justice to the mutual rights of riparian proprietors along a natural water course; principles just as appli-
6160 cable within the borders of Illinois to parties in a like predicament, as in the mountains and valleys of California.

Burnett v. *Whitesides,* 15 Cal., 35.

Of this case the writer has no copy, nor full abstract; but in a note to I Hilliard on Torts, p. 661, we find it cited to the following effect:

"Plaintiff and defendant both drawing water from the same stream, and the plaintiff having the priority of right, if the

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defendant introduce into the stream water obtained from a foreign source, he has the right to divert the quantity thus emptied into it, 'less such amount as might be lost by evaporation and other like causes'; but the water cannot be reclaimed so as to *diminish* the quantity to which the plaintiff is entitled as prior locator."

In the case at bar the State not only does not *diminish,* but in fact more than *doubles* Adam's supply. His only grievance as the record will show, consists in having a miserably poor mill-privilege improved by the State into first-class property.

See Rec., p. 23.

The case of *Elliott* v. *Fitch. R. R. Co., supra,* declares substantially the same principle as that announced in the California cases. It holds, in effect, that when A takes out from No. 1, only what he contributes from No.
6161 2 (his own reservoir), B cannot complain of a wrongful diversion; and this, not upon the principle of set-off or compensating advantage, but upon the general ground of reason and justice, that when a party withdraws from a

water course no more than he adds to it by his own improvements, it is no diversion.

In the important case, of the *Society for Establishing Manufacturers* v. *Morris Canal Co.*, 1 N. J. Equity Reports, 157, argued by most distinguished counsel of the New York, Pennsylvania and New Jersey, bar, the opinion of Chancellor Vroom is very emphatic as to the right of the defendant, *The Morris Canal Co.*, to introduce into the Rockaway river the water of Lake Hopatcung, and a branch of the Raratan, and then take out of the Rockaway below, sufficient for canal purposes, if not thereby diminishing the natural flow of the stream. "If, then," says the learned Chancellor, "the defendants take from the Rockaway no greater quantity of water than they bring in (and they claim the right to do no more), will not the Society (the complainants) enjoy their privilege

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without diminution or alteration, or can they in anywise be injured?" The court in this case clearly recognizes the right of the Canal Company to use the Rockaway as a common channel to conduct the extra water to a certain point and resume its use again for the purpose of the canal, notwithstanding the fact that this water was
6162 not returned to the passaic till it passed the great falls at Paterson, where complainants' manufactories were established.

In opposition to this current of authority, we have failed to discover a single case, that when fairly read, and with careful reference to the state of facts which molded and gave complexion to the opinion, can be regarded as holding the contrary. All such as are supposed to bear adversely will be found distinguishable by one or both of two features:

1. The controversy was not between A and B (if we may still use our hypothesis, as a convenience), but between B and C. C, a still lower riparian proprietor, claiming as against B, that he (C) had a right to the benefit of the water abandoned by A, the uppermost owner, to the general future use of all the lower proprietors on the stream.

Tourtelotte v. *Phelps*, 4 Gray, 370.

2. In none of the cases where A was forbidden to divert the water contributed by himself, will it appear,

that he had made the contribution, as in the case at bar, under a comprehensive, connected plan, executed by a train of suitable structures, *to withdraw it again*, upon his own premises; but, under such circumstances that it was characterized as a permanent, irrevocable dedication to public use. Having once thus "*abandoned*" it,
6163 he was not permitted to revoke the gift.

Yet it will throw some light on this part of the argument to consult also the following authorities on the subject of artificial water courses:

Wood v. *Waugh*, 3 Exch., 748.

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Angell on W. C., Sec. 433 (note 1).

2 Wash. R. Pro., 329.

Gaved v. *Martyn*, 115 E. C. L.

Broom's Leg. Max., 375.

From these, it will be seen, that so strictly have the rights of riparian proprietors been limited to the *natural* flow of the stream, that in cases where *artificial* tributaries had been continued in operation for more than twenty years by A, B, nevertheless, was held to have acquired no *prescriptive* rights therein. This strongly illustrates our position. If A can thus at any time *ad libitum* cut off the artificial tributary No. 2, and divert it into some other channel than No. 1, we ask on what principle can it be maintained that he may not, with as little injury to B's legal rights, use his own part of No. 1, as a channel to pass the water from one point to another of his own premises? How is B injured in one case more than in the other?

Upon this point we cannot conclude without again quoting a little more at length from *Hoffman* v. *Stone*, cited, *supra*.

6164 The action, as we have already stated, was brought by the owners of a ditch (which received its supply of water from Dutch Creek, or ravine, near its mouth), in El Dorado County, for the purpose of procuring a perpetual injunction against the defendants, restraining them from diverting or appropriating the waters of the said ravine. The defense was, that Dutch Gulch, was usually a dry creek, affording no natural water during the summer months, and that the defendants, in order to connect two of their canals, had precipitated the water from the upper one into the creek, and taken

the same out again, by means of a dam, into their lower ditch, and that they had not interfered with the natural water of said ravine.

The court, speaking through Chief Justice MURRAY, said:

"The former decisions of this court, in cases involving the rights of parties to appropriate waters for mining and other

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purposes, have been based upon the wants of the community, and the peculiar condition of things in this state (for which there is no precedent), rather than any absolute rule of law governing such cases.

The *absence of legislation* on this subject has devolved upon the courts the necessity of framing rules for the protection of this great interest, and in determining these questions *we have conformed as nearly as*
6165 *possible to the analogies of the common law.*

* * * * *

In the case before us it is shown that Dutch Gulch was a mere torrent, dry at certain seasons of the year; that it was used by the defendants as a part of their ditch for conducting water from another stream down to their dam. That in point of fact the water so brought to Dutch Gulch, and turned in there by defendants, was not abandoned by them, but was turned in for the purpose of being conveyed to their dam. That there was, at the time of the commencement of this suit, no natural water flowing in the bed of the stream, and that all the waters so diverted by the defendants were artificial, or waters conducted there by them.

The plaintiffs being the prior locators, it would follow that any interference with the waters of Dutch Gulch would be an infraction of their rights. But the appropriation of the waters did not give them the exclusive use of the *bed* of the stream. We see no reason why it might not be used by *others as a channel for conducting water, so long as it did not interfere with their rights.* If the defendant were diverting the *natural* water of the stream, as well as that brought into it by themselves, then the plaintiffs would have a just cause of complaint. It would be a harsh rule, however,
6166 to require those engaged in these enterprises to construct an actual ditch along the whole route through

which the waters were to be carried, and to refuse them the *economy that nature*

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occasionally afforded in the shape of a dry ravine, gulch or canyon. It is contended, however, that this case falls within the rule of *Eddy* v. *Simpson*, 3 Cal., and *Kelly & Co.* v. *Natoma Water Co.*, Jan. T., 1856. We do not think so. The verdict of the jury finds that the water was *not abandoned* by the defendants, and left to find its way by natural channels into Dutch Gulch, but was *turned in* by the defendants, making a connecting link of their ditch."

We now submit, that both on principle and authority, the State of Illinois, as the upper riparian owner, has the right to withdraw from the river Desplaines a quantity of water equal to that which it contributed from Lake Michigan, provided that it is done on its own premises; that its rights have not been relinquished by contract; and that it has done no act operating as a final and irrevocable abandonment thereof to public use.

THE CREATION OF WATER POWER WAS ONE OF THE OBJECTS CONTEMPLATED IN THE ORIGINAL PLAN OF THE CANAL.

An attempt was made in the argument of our opponents in the court below, to show, by referring to the several acts of the legislature, under which the Deep
6167 Cut was completed, that the water thus obtained loses its character as the proper water of the Illinois and Michigan Canal, below the Summit Level; and it seems to have made more impression upon the Appellate Court than we anticipated.

It is a matter of public history well known to the court, that the original and long cherished plan of the canal was to supply the Summit Level from Lake Michigan, precisely as it is now supplied. Much of the work, in fact, had been done before the suspension, which occurred in 1840. When the enterprise was resumed in 1845, under the well remembered trust created to secure the bondholders, the then embarrassed financial condition of the state compelled a relinquishment of the original

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scheme, and the substitution of what was termed the

"raised or shallow cut," to be supplied by pumps at Bridgeport, with the aid of the Calumet Feeder.

In 1865 the City of Chicago found itself confronted by the formidable problem of drainage, for the health and comfort of its citizens; and deeming that this object might be promoted if not effectually accomplished by completing the old deep cut, already partially excavated, asked permission of the state to take hold and finish the work. Permission was given by the act of 16th April, 1865, entitled "*An Act to provide for the completion of the I. & M. C. upon the plan adopted by the State in* 1836." Besides this title, which seems
6168 significant enough, the preamble to the act contains a reference to the past history of the improvement,—the original plan,—"its abandonment for the time being,"—the precarious and unsatisfactory nature of the mode of supply from the Calumet feeder and hydraulic works at Bridgeport, and the great benefit to the canal itself to be expected by deepening the cut.

See Public Laws, 1865, *pp.* 83-4.

The work accordingly was undertaken and was completed in 1871, at an expense of several millions of dollars, and the cost soon after refunded to the City of Chicago by the state.

With all due respect to the Appellate Court we must say, as we said on a previous occasion, that we deem it unnecessary to seriously argue the point which counsel had suggested, based on the special circumstances that led to the execution of the improvement. Is it not enough that it was in fact made? Is it not enough that the deep cut is in fact an integral part of the whole canal? Is not the condition of the case, for all legal purposes, precisely the same as if the work had been done in the first instance by the state, instead of by the City of Chicago, and done in 1848 instead of 1871? Can this part of the canal, now that it is finished and paid for out of the state treasury, be

distinguished from any other part, as to the jurisdic-
6170 tion of the state over it, or over the water in it, in any respect whatever?

RIGHT OF THE CANAL COMMISSIONERS TO CREATE AND LEASE WATER POWER.

But again, the counsel for appellee, in their previous argument, expressed a doubt, whether it was quite according to law for the Canal Commissioners to create and lease water power to help repair, improve and support the canal; and to sustain this view, ransacked the canal laws *ab initio*, not forgetting the act of Congress of 1822.

To this somewhat remarkable position we reply:

1. While navigation is the *primary* and cardinal object of every navigable canal, yet, to create water power as an incident, has been the universal policy of such enterprises, whether undertaken at the public expense or by private corporations. The disposal of the water in descending from one level to another must necessarily be in the control of the state, and the public good, as we had supposed, demands both that it should be utilized in aid of the manufacturing interests of the country and made to contribute as far as possible, to the expense of maintaining the work. Such, at all events, we know, has been the unquestioned policy of the Illinois and Michigan Canal, for more than thirty years. No express statute indeed was required to make it the bounden duty of the Canal Commissioners, in the vigilant fulfillment of their public trust, to add in this
6171 way to the limited revenues of the canal, wherever they found it practicable. The particular details of administration in respect to this branch of their official charge, are necessarily confided to their own judgment and discretion. Special occasions have arisen and may again arise for special statutes on this subject; but the particular methods of creating water

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power at any given place must, as a general rule, be a question for the commissioners, with the advice of their engineer.

2. The statute regulating their powers and duties expressly gives them a plenary authority to lease water power; as a recognized source of canal income.

R. St. (1874), p. 189, Sec. 8, Ch. 19.

The expression here used "and lands and lots connected therewith," cannot well be construed as intended

to exclude cases where the State happened to own no lands or lots adjoining the *locus* of the waterfall. Ordinarily such a connection would exist, but it would not, where the site occurs on a school section, as in the case here, or on Government lands. Still, unless the two subjects enumerated in the clause "water power" and "lots" are, from their nature, indissolubly incorporated together, as objects of sale or contract, they are to be taken severally. We are to look at the main design of the law; and that we cannot doubt was to utilize the surplus water for the benefit of the State, wherever possible to do so.

6172 3. But lastly, the question is entirely immaterial. If the appellee is legally entitled to the water, the point is needless;—if he is not, of course its use by the commissioners is no concern of his.

IS THE WATER ABANDONED AT LOCKPORT?

It was contended, by our opponents, and the Appellate Court seems to have yielded to their reasoning, that admitting the general principles under which we claim the right of the State to draw out above the appellee's dam the water derived from Lake Michigan, yet they are not available to us in this case; that they apply only where he who asserts them is riparian owner *continuously* for the whole distance, from the point of introduction to the point of discharge; that here the State

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is not shown to own any land upon either bank of the Desplaines river between Lockport and its junction with the canal in the upper basin at Joliet; and that the water being thus allowed to escape into a foreign water course, at a point where the State has no right as a riparian owner, it must, therefore, be deemed to be abandoned, and that being abandoned it is thenceforth incorporated with the proper water of the river, so far as respects the rights of the riparian owners below.

THE INTENTION OF THE STATE.

On this point, to which the opinion of the Appellate
6173 Court gives prominence, our first inquiry will be, what was the *intention* of the State as evinced in the plan of

the canal? For it will be difficult to maintain, that anything is effectually abandoned, which the owner evidently purposes to immediately resume and control for his own future use.

To begin with, the entire plan of the canal is to be treated as a *unit,* and viewed, comprehensively; each part in its relation to every other part, however remote. The chain or system of structures composing it as a whole, must be surveyed, also, in connection with the physical peculiarities of the region through which it passes; for, in planning such a work the engineer must necessarily adapt it to the contiguous localities.

The relative course and comparative levels of the river and canal between Lockport and Joliet are shown, in a general way on the map which the court has before it.

The conditions are such, it will be seen, that the surplus water discharged at Lockport, through Norton & Co.'s tail race and through the waste weir, necessarily seeks and pursues the natural depression constituting the channel of the Desplaines river for a distance of about three miles, joining the canal again between Lock No. 4 and Dam No. 1.

And this is called an irreclaimable *abandonment,* operating

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to extinguish any proprietary rights of the State in the water, and making it in a legal sense at least as to the
6174 appellee, Adam, a constituent part of the proper customary and natural flow of the Desplaines river! But now let counsel explain what they mean by *abandonment?* The only force of the term as here used is to signify some act or default of the State, by which it loses its *jus disponendi* in the water, as a subject of future exclusive control. What is it? Where do we find it? No actual *personal* intention to abandon in this sense can be imputed to the commissioners; for that is conclusively negatived by the very facts which led to this suit. The surplus in question had only come into existence in 1871, and during this short interval there surely is nothing shown in the record to indicate any such intention on the part of the canal authorities; no act, no declaration, no prolonged *non-user,* which can possibly be construed as having that effect. Indeed this lease to Slater & Druly in 1878, may have been and probably was the

first opportunity that offered for a lease of water power on this new plan, below Dam No. 2. Possibly the plan itself had not before occurred to the commissioners. At all events, there is nothing tending to show any actual purpose of the official representatives of the State to abandon, in the sense here supposed.

Again, no abandonment could be predicated upon the bare fact that the water is transferred from one level to another, provided it passes all the way through the prism of the canal or some appurtenant channel belong-
6175 ing to the State, made for that very purpose. Nor, upon the supposition that the water has been permanently and finally detached from its relations to the canal; because, it is obvious that it is destined to be taken in again but a short distance below, and, that, too, as a necessary physical consequence of the *plan* of the canal itself. This return of the water to the canal is just as certain to take

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place as if the water descended from the one level to the other between the very walls of the canal.

Where then is the abandonment? It must consist, if at all, in this;—that in descending from one level to another, it makes a short *detour* through a foreign channel, situated most conveniently for the purpose, but which unfortunately does not for this intermediate distance belong to the State as riparian owner. This circumstance, quite unimportant one would think, to the beneficial rights of Mr. Adam, suggests to his counsel the notion that the instant the water passes from the premises of the State, although immediately returned again and found in the canal, long before it reaches the boundary line between the State and Adam, it becomes transformed as to him into "the natural, proper and customary flow" of the Desplaines river. Does not this approach absurdity?

The waters are mingled, it is true, and can no longer be distinguished and identified. But, as we have pre-
6176 viously remarked, this identification is not necessary to a proper adjustment of the substantial rights of the parties concerned. The water is recognized in this action only in its character as an agent of mechanical power; and any one cubic foot of the fluid, under the same conditions of fall, is precisely the same

as any other. When two or more mill owners are interested in certain proportions in a volume of water thus mingled from different sources, the quantities belonging to each can be measured with reasonable certainty, and their relative rights duly ascertained and enforced. If Mr. B, in our hypothesis is entitled to receive and does receive 10,000 cubic feet of water at his mill, how can it concern any rights or interests of his, from whence it comes, or through what previous conditions of transmission it has passed, before reaching his pond? A court of justice will not perplex itself with such fruitless and senseless trifling. It will define nothing as even a technical right except such as may be supposed to be in some possible

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way and some conceivable degree beneficial to the plaintiff. But this confusion of the element of water as a mechanical agent, by the necessary intercommunication occurring between different water courses, can produce no injury to any party interested. Hence, we assume that the legal *status* of the waters in question here cannot be affected in the least by the mere circumstance of having thus commingled in one stage of their course.

6177 Again, we ask, where does the abandonment come in? It does not necessarily result from the mere fact that the State is not riparian *proprietor* in fee on the Desplaines continuously from Lockport to the point of junction at Joliet. Suppose the State had procured a *lease* or the *written consent* of all the land-owners on both sides of the river to so use the channel. Would not this have obviated the ground of objection? We have indeed no proof of any such written consent from them; but suppose that for thirty years they have in fact made no complaint of this use by the State; and have thus tacitly and impliedly acquiesced, would not the effect be the same? Now, this happens to be the precise truth here, as we may fairly infer from the record. From the very beginning the State was known to have appropriated the river to its service as a feeder, in respect to whatever water it could supply from its own sources and affluents. It is in fact named as a feeder in the Haven's release. (Record, 25.)

And this additional but homogeneous use, even if it could not be claimed as a matter of right, was not and

could not be objected to by the land owners who were already subject to the prior easement. The improved flow across their own premises could be no possible detriment to them. Those who owned mill sites would hard-
6178 ly object to the free gift of 25,000 cubic feet of water per minute to turn their wheels. They would have acquired, indeed, no vested right in this improved flow, and the State could withhold it any day, without affording

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ing just ground of complaint; but while permitted to enjoy it they must be presumed from the dictates of self-interest to consent to the use of the channel made by the State for its own ulterior purposes. Now, if the river was employed as a medium of transmission with their consent, as we must presume, is not the case essentially the same as if the State happened to be riparian proprietor in fee continuously from Lockport to Dam No. 2?

But even with and against their consent, the result, we submit, would still be the same—so far as the appellee is concerned. It would in that case be exclusively and strictly a question between the State and these riparian proprietors, not affecting or concerning those above or below them in the least. If the State made an unauthorized use of their respective portions of the river, detrimental to their rights, justice would dictate that they should have redress. But how would this wrong committed upon them individually, have any proper bearing on the question, whether the State, as to Adam, had abandoned the water for his benefit? It is quite indifferent to him, one would suppose, under what relations as between the State and these upper proprie-
6179 tors the water might make its way down to Dam No. 2. In either or any case it is inevitably destined to rejoin the canal, and is accompanied all along with the constant intention of resuming control of it for alleged canal purposes.

SUMMARY.

We conclude, then, as to our first and main proposition:

1st. That an upper riparian proprietor upon a natural water course, who within his own domain puts in water from an exterior source may again take it out,

unless between the points of introduction and discharge, he has done some act or placed the water under some local conditions which, in reason

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and law, amount to a renunciation of this right of exclusive control.

2nd. That the record here discloses no such act, and no such local conditions.

3rd. That it is immaterial to the issues here how the deep cut happened to get finished, or how the City of Chicago was interested in the flow of water, as effecting her problem of drainage. The summit level is at all events a constituent, integral part of the canal; and the water received into it is in precisely the same legal predicament, as if the work had been done by the State in the first instance.

4th. That except as the proposition may be qualified by special contract in respect to the rights of par-
6180 ticular individuals, all water received into the canal from whatever source, or to subserve whatever incidental object, is to be deemed the proper water of the canal to be used for all proper canal purposes; that it has universally been recognized as a legitimate object and economy of canal management to create and lease water power wherever practicable; that our statute recognizes the object in express terms, and that the right of property in the State to the water in the Illinois and Michigan Canal, with respect to that object, rests upon the same grounds as its right to water needed for purposes of navigation. The rents from mills is as desirable and legitimate a source of canal revenue as the tolls from boats.

5th. And finally, that for these reasons there has been no diversion from the mill of appellee, unless the rights of the State, in the surplus water first created in 1871, have been in some way abridged by the transaction with Haven, and Haven, in 1853.

This matter of the release will be considered hereafter.

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II.

THE DIVERSION, IF ANY, BEING CONSUMMATED AT DAM NO. 2, IT CANNOT BE IMPUTED TO THE LESSEES OF WATER POWER ON A LOWER LEVEL, AS THE RESPONSIBLE AGENTS THEREOF.

6181 The oat mill of the defendants is situated on the berm bank of the canal, about a mile below Dam No. 2. At this dam, the water, that is not suffered to flow into the channel of the river and thence down to appellee's mill, is discharged into the Channahon level through the lock and a bulkhead, constructed for the purpose.

At this point, as the court has seen, the canal has entirely completed its crossing of the Desplaines river and from thence onward pursues a separate and independent course.

Hence the instant the water leaves the pool of the dam and descends into the Channahon level it becomes by a physical necessity forever detached from all relations of riparian right with the river and the mill and dam of the plaintiff.

When it reaches a point opposite the defendant's mill, it can no more be identified or recognized as river water than at a point ten miles below or at Ottawa or La Salle.

The act of *diversion*, therefore, that act which completely accomplishes the injury to the plaintiff, if any there be, takes place at Dam No. 2; for it must *ex vi termini* consist in that operation, or series of operations, by which the water, instead of being suffered to
6182 flow over the dam into the river channel and down to Adam's wheels, is irrevocably turned away in another direction. And in this operation, performed as it must be, by the functionaries of the State, in the official administration of the affairs of the canal, the defendants, we humbly submit, can be supposed to exercise no responsible agency. The stage of water in the Channahon level from time to time, and

the methods of supplying it, are matters of exclusive official cognizance and regulation, in which third persons have no concern.

The water being by this process already irrevocably

diverted Adam, as a riparian proprietor, has no further concern with it. In its mere character as a physical substance, he sets up no right to it in this suit. The *use* is all he claims, and he can assert no *usufructary* right, except where he finds it existing under such local relations to his mill, that *he* himself could use it as a motive power, if the defendants did not. But is it not obvious, that when the water has reached down to a point opposite their head gates, it can be of no *benefit* to him in any possible event, and it therefore can be no *injury* to him, if used by others? If the use of it by Slater & Druly was no legal *injury* to him, how can it be denominated a diversion in the sense of the law? Does it not seem too plain for serious dispute, that the act of diversion, if any, is performed at the point where the road forks, so to speak, and is there performed by the
6183 sole agency of the officers of the State, in the execution of their public duties? The only claim of the appellee to the water, we repeat, is that of *user* for hydraulic purposes at his mill, and so the declaration expressly describes it. He asserts no right to it otherwise; and this usufructuary interest is only supposable under conditions which make it possible for *him* to use it at *his* mill. After it has passed down and out from these conditions, and is found in some place entirely beyond their range, certainly it can no longer afford a cause of action to him.

But it is said, that the lessees of the water power became joint wrongdoers with the official agents of the State, by accepting the lease. They knew, or were bound to know, that the water they contracted to receive was due to Adam, and thus in law became parties to the diversion. We cannot think the view tenable at all.

While the State in its relations with its citizens is in justice

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bound to afford redress for wrongs of this description, if wrongs they be, done under its authority, yet it is an express requirement of our public policy, that relief in such cases should be sought from the Legislature by petition, rather than from the courts by action. No application of this principle can be more obvious, than to the
6184 affairs of the canal; and especially to a case like this at bar. The commissioners, and their executive officers, by

authority from them, are invested with entire jurisdiction over the canal and its waters and over all its operations in regulating the stage of water from time to time on the several levels. In dealing with these representatives of the State in respect to the water of the canal at any given point in the line, it would be most unjust to ask private individuals to inquire at their peril as to the particular sources from which the water was derived, and the special conditions of private right to which it might be subject here and there. *There* is the water, within the banks of the Illinois and Michigan Canal, in the undisputed and absolute possession of the agents of the State; a possession, which whether right or wrong, no one can interfere with. What could Slater & Druly be supposed to know, when they took their lease, about this old Havens settlement in 1853, if indeed it ought to cut any figure in the case at all? The persons controlling and regulating the stage of water in the several levels, and its transmission from one to another were public officers, acting under official responsibility, and presumed from every *prima facie* indication of authority, to be acting rightly.

Ballance v. *Underhill*, 3 Scam., 453.
Glancy v. *Ellcott*, 14 Ill., 456.
Todemier v. *Aspinwall*, 43 Ill., 401.

6185 They appeared to be in the full undisputed possession of the water; and, by all the analogies of the law, that possession was presumptive evidence to third persons of a plenary

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right to control it. In fact the presumption ought, we think, to be stronger here, than in ordinary cases of the possession of property, which could be physically identified and distinguished; for, it is impossible to make any discrimination, based on diverse proprietary rights, in regard to the aggregate mass of water contained in the canal. But it may be argued that the defendants knew the local relations of the canal and river, and therefore the rights of Adam; because, these rights were inferable from those relations. This would be carrying the rule relied on very far. Two courts have passed on the question and have differed diametrically in their opinion. Were these plain grinders of oat meal to "know the true

prince by instinct," when wise judges thus differed, after elaborate argument?

But the learned judge delivering the opinion of the Appellate Court, places his main stress, if we understand him correctly, upon the release from Haven & Haven, as going far to establish the rights of Adam. With all due deference, we cannot but think and shall endeavor respectfully to show, that the court was here in error; but, be this as it may, what evidence is there in this record, that these lessees before this suit was brought knew anything about that release? And what was there
6186 to put them upon inquiry?

When public officers, in managing public property, under a discretionary legal authority, which is *prima facie* sufficient, contract in any instance with individuals, and under that contract act jointly with them, the *scienter*, the tortious intent would seem to be indispensable to make their co-contractors joint tort feasors.

Hilliard on Torts, Vol. 2, pp. 155-255.

Main v. *McCarty*, 15 Ill., 441.

Jermaine v. *Wagner*, 1 Hill (N. Y.), 284.

In the case late cited, decided by the Supreme Court, of the

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State of New York, acts done under the authority of the Canal Commissioners of that State were sought to be justified "because the canal commissioners had jurisdiction of the subject matter;" and it was argued, that "although the latter might not be protected, yet the defendants should be, inasmuch as they acted under the direction of a body which was *prima facie* authorized to give the direction." The court seem to have fully recognized the general principle for which we contend, but held in that case that the commissioners had no *prima facie* authority.

In this connection, it may not be unworthy of notice as a consideration of some significance, that the Canal Commissioners are themselves exempted by law from being sued.

R. S., Ch. 19, Sec. 3.

6187 The object of this is manifest. It was deemed mischievous to the public interests, that the acts of the commissioners, who are declared "for all legal purposes" to be "officers of the State" should be left lia-

ble to the vexations and obstructions of daily litigation. How far this exemption ought to be extended, or whether it is subject to any exceptions, we need not say. It is very clear, at all events, that a case like this, of all others, falls within the scope of the policy thus established. This on its very face is a square direct contest between William Adam and the State of Illinois; involving a question of public concern; whether the surplus water drawn from Lake Michigan by a cut through miles of solid rock at a cost of millions of dollars, belongs to him and his little 7 by 9 mill, or to the State of Illinois. If he is aggrieved by the State, the constitution denies him any method of redress, save one supposed to be ample under a just and enlightened government, and that is, to lay his case before the General Assembly. But this he conceived would be an inconvenient, perhaps an expensive, and certainly a very *hazardous* experiment; so he

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casts about him for some way to evade the constitution and the laws, and finally brings suit against these innocent lessees, who had erected a large and expensive mill, upon the faith of their contract with the official agents of the State of Illinois. The point we have been
6188 considering is entirely needless, as we suppose, for our defense, and we shall expend no more labor upon it; but it will be for the court to say, whether such a suit is not a palpable evasion of our policy, as to the administration of public property; and if so, whether it ought to be favored or maintained. If the tort is by statute no tort against the State or its officers, ought it in justice to be held a tort against these lessees?

If not, how can they be described as joint tort feasors, upon the general principles connecting joint trespassers in responsibility?

III.

THE HAVENS RELEASE.

The point made on the trial of the cause, that the release executed by the plaintiff's grantors, Haven and Haven, in 1853, operated as a bar to the action, we do not care to press at much length in argument here. It does not touch the main and really interesting question

in the case, on which the opinion of the court is desired; and is we hope, entirely superfluous for any necessary purpose of defense. A word therefore in reference to it will suffice.

The question is one of fair construction. On expression in the release, if taken literally, limits its operation to "purposes of navigation as contradistinguished from any other purpose." It is argued, and, we con-
6189 fess, not without plausibility, that this excludes the idea of a full and complete power of disposition over the water taken. But the grant, although expressed to

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be for "purposes of navigation," was in practical effect a grant of the entire stream; unless construed as subject to a tacit condition that the trustees should always maintain its other feeders *in statu quo*, and that the Desplaines should only be required to furnish for purposes of navigation, its proportionate share, *in conjunction* with those other feeders. We are not convinced that the trustees in this compromise meant to so bind themselves. It would hardly comport with public policy, that the rights of the State in reference to any one of its several feeders should be hampered by such a restriction, precluding it from any future change in its system of supply, however expedient, without incurring the risk of forfeiture. We think, that while it was not then deemed probable that there would be any material alteration, yet, the river was turned over to the trustees as a feeder for any and all the uses and purposes attributable to any canal feeder. To employ the term "for purposes of navigation," as a term of cautious limitation, in connection with this contemptible rivulet and the Havens' still more contemptible interest in it, would have been ridiculous. If the State had the right to the whole of it, irrespective of other feeders, to fill the level, it was perfectly well known that there never could be to the end of time a *surplus* to use for water power; and
6190 hence we felt justified in contending on the trial that the release, when fairly construed, was intended to be general and unlimited; and the entire waters of the river turned over to the trustees to use at their discretion. Even an arrangement of that kind must have been regarded by the Havens as highly advantageous to them; because this court had just decided in 11th Ill. that they

were riparian owners only on one side, that their dam was wholly unauthorized beyond the center of the stream, that they were at the mercy of the State, as the owner of the opposite bank, for their power; and that they could expect no more than nominal damages by any assessment that the courts would sustain. The compro-

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mise was assented to by the trustees, because on their part they did not choose to be harassed with perpetual suits for even nominal damages.

The Appellate Court, however, if we rightly apprehend its decision, adopted the conclusion, not only that the release was no bar to the action, but that it even had the effect of giving to the plaintiff as grantee of the Havens, a right to claim as riparian owner this vast additional volume of water, produced eighteen years afterwards by an improvement which entirely revolutionized the former system of supply—an addition exceeding, probably, twenty times the natural flow of the Desplaines in 1853!

6191 Holding that court, as we do, in the highest respect, we must nevertheless, be permitted to insist here most strenuously and confidently that their position is unwarranted by any just construction of the release.

The whole transaction between the Havens and the Canal Trustees had reference to the *state of things then existing.*

The canal had been completed in 1848 upon the shallow cut or raised level plan, as the best the State in those hard times could do. Instead of a direct and never-failing supply from the lake, the level was to be supplied by the poor expedient of pumps at Bridgeport, reinforced by the Calumet, and the feeble and uncertain tributes in spring and fall of the little Desplaines. There are probably upon the bench of this court those who personally know how little anybody in Illinois at that early day expected the time would ever come, when this channel would be carved deep through miles of solid rock to the inexhaustible bosom of the lake. It is fair to affirm positively, that neither of the parties to this agreement, the Havens or the Trustees, thought of such a thing as the ultimate finishing of the Deep Cut, any more than they thought of the millennium. In fact at that

time the railroad era had dawned in Illinois, putting water communications completely in the

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background, and making it exceedingly doubtful whether the State would ever spend another dollar on that kind of internal improvements. But the release itself contains abundant intrinsic evidence, that the whole arrangement had reference to the particular state of facts existing in 1853. It recites the claim of the releasors as riparian owners on the Desplaines river, that they had suffered damage by the diversion of the water belonging to them as such owners, the legal proceedings pending to settle the question in dispute, and the expediency of stopping the litigation, by compromise; and then proceeds to set forth the terms of adjustment agreed on. Some disputed questions, it is true, had already been adjudicated in this court.

Canal Trustees v. *Haven*, 5 Gil., 556.

Same v. *Same*, 11 Ill., 554.

In the first case, which went up on an agreement as to the facts, it was decided that the Act of Congress of 1822 did not apply to school sections, that although the Desplaines river had been meandered, the grantees from the Government took to the center of the stream, and that the Havens were to be regarded as riparian proprietors, and as such entitled to recover for any diversion of the water *of the river*. In the second case, it was decided, that the Havens were riparian owners only on the east bank; but were entitled to at least nominal damages. Both cases, as will be seen, simply recognize the old familiar common law rules on the subject
6193 of riparian ownership and diversion. At all events, it is entirely certain that in neither was there a single intimation that the Havens occupied any other position than that of ordinary riparian owners on a natural water course; or that, from the peculiar relations between the river and the canal, they could claim damages for the diversion of any water other than that which could be shown to be the natural, customary and proper flow of their stream.

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Nor did the release contemplate any extension or modification of their common law rights as riparian owners, further than this, that the State, as represented and

bound by the canal trustees, might perhaps be held to have virtually acquiesced in their right to thereafter maintain their *dam* across the whole width of the river to the bank of the canal, using that bank for their west abutment;—a right which they did not possess before. But the learned judge who speaks for the Appellate Court, argues, that at that time, in 1853, the surplus water from the summit level, discharged at Lockport into the Desplaines, came down to the pool above Dam No. 2, by precisely the same process as does the immensely increased flow now; and that the trustees, in *accepting* this release virtually recognized this surplus as a part of the legitimate flow of the river, for the diversion of
6194 which the Havens were entitled to damage. Where did the court find in the record in this case any warrant for such a proposition? Certainly not in either of the decisions of this court which have been cited. Certainly in no express grant, declaration, or admission of the trustees, for they made none. Certainly not in the language of the release, because it nowhere speaks of the water in dispute, otherwise than as "the waters of said Desplaines river." But what were the waters of the Desplaines river? The particular point arising here was not referred to in either of the decisions of this court. It is quite evident it was not considered in the assessment of damages, from which the second appeal was taken. In the opinion (11th Ill., 554), Justice TREAT speaks only of "diverting the *water of the river* from its natural channel,"—"of the use of the water as it is *accustomed* to flow along the channel,"—of the right "to use the whole of the water naturally passing down the channel,"—of the H's being "entitled to use but half the water naturally flowing along the channel,"—of their duty "to use it as it is accustomed to flow down the channel," &c.,—language appro-

priate only to a case where the water in question was recognized as being that which was "accustomed" to flow through the water course under consideration. And what is meant in the text books and adjudged cases, by water *naturally* flowing, and water *accustomed* to flow?
6195 Are not these the terms always used to define the ordinary and proper flow of a natural water course, with no possible reference to the exceptional case, in which

an upper owner happens to have improved the stream from a reservoir of his own?

In 1853, the canal had been in operation but five years. During this time, it is true, the surplus from the summit level had passed down the river to its junction with the canal in the upper basin as it does now, and as the plan of the canal required. Was this sufficient to make it in the eye of the law an ordinary and customary flow? Could even twenty years have created a right by prescription against the State? Could not the State, if it had chosen, and if it had been practicable, stopped at any time this flow through the river and discharged this surplus through some other channel? Who can doubt it? But when the parties got together for a settlement, the occasion had passed for any such belligerent analysis of rights, and probably these considerations were not mentioned or thought of at all. How then can it now be contended that by *accepting* that release the trustees estopped themselves and estopped the State forever from asserting against the Havens or their grantee, that the contribution to the river from the Lockport mills and spillway in 1853, was not a part of its natural and customary flow? This court once said: "It is a familiar doctrine that the State is not embraced within the statute of limitations, unless specially named,
6196 and by analogy would not fall within the doctrine of estoppel. Its rights, revenues and property would be at a fearful hazard, should this doctrine be applicable to a State? A great and overshadowing public policy of preserving these rights, revenues and prop-

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erty from injury and loss by the negligence of public officers forbids the application of the doctrine."

The People v. *Brown*, 67 Ill., 438.

On this point, therefore, we conclude, that the Havens release is to be construed with reference to the state of facts or circumstances surrounding the parties at the time it was executed; that in the suit of which it was the final adjustment, they appear to have set up no claim save that of ordinary riparian proprietors, that is to say, a claim to the water as it was accustomed to flow in the natural channel of the Desplaines river; that there never had been a judicial determination or intimation, to the effect that the addition to that customary

flow, produced by the discharge from the hydraulic basin and spillway at Lockport was or had become by lapse of time or contract or otherwise a part of such customary flow in any legal sense, and that there is nothing in the release itself importing any such claim. It seems too plain for argument. One of two things must be true;—either the question was considered by the parties in their settlement, or it was not. If it was *not*, then the accept-
6197 ance of the release cannot be now set up by way of estoppel to preclude the State or its grantees from raising the point;—if it *was*, then the terms employed conclusively demonstrate, that the Havens did not expressly make and therefore could not be understood as intending to make any such claim.

But be this as it may, even conceding that in 1853 the trustees in treating with the Havens did not choose to notice the distinction between the natural flow of the river and the artificial addition supplied from the canal itself, and were willing to recognize the whole aggregate volume indiscriminately as river water,—such an agreement as that even cannot be construed as contemplating or embracing the unlooked for state of things existing now. They, and nobody then could have fore-

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seen that in the lapse of eighteen years, by a somewhat remarkable and entirely unlooked for train of causes, the long suspended deep cut would at last be finished, the whole system of supply for the summit, Joliet and Channahon levels totally revolutionized; and the Desplaines in its character as a feeder completely wiped out from the map. The first canon of construction in expounding contracts, and the one which really involves all others, is to get at the intention of the parties. To do this, the courts place themselves "as far as possible" in the position of "the parties when they made the contract, by possessing themselves of the circumstances
6198 which they had in view during the negotiations."

Stout v. *Whitney*, 12 Ill., 227.

Wilcox v. *McGhee*, 11 Ill., 381.

Hadden v. *Schoutz*, 15 Ill., 582.

Now waiving all advantage from the rule that grants are to be taken most strongly against the grantor, and the equally familiar rule that in favor of the Government even its own grants are to be construed strictly as

against the adverse party and favorably for itself, let us place ourselves in the canal office in 1853. The Desplaines was not much of a stream, but the trustees wanted to control it as a feeder for whatever it was worth, without the liability of incessant lawsuits. The Havens making their appearance before the board in a simple character of riparian proprietors on the east bank, as holding title to lot 1, block 57, School Section Addition to Joliet, agree to execute a perpetual release of damages for $3,000. Suppose the president of the board had said—"Perhaps the State may in a few years finish the deep cut, supplying, say, 25,000 cubic feet of water per minute, enough for navigation and an immense surplus besides for water-power at Lockport and Joliet. Now if in this event she shall turn over Dam No. 2, into your mill pond, or at least double the quantity of water you are getting now, and probably ten times what you got before the canal was opened, thus con-
6199 verting your little mill into first-class property, do you mean to sue anybody for *damages*, should our successors, the Canal Commissioners, find it expedient to use the rest of the water somewhere on the Channahon level?" Judging from this paper and the attendant circumstances, what likely would have been their answer? Tenacious as they had been of their rights, they had never put forth a claim so absurd as this. They had never claimed a foot of water to which they could not show themselves entitled as riparian proprietors by the strict rules of the common law. They had never sought to recover damages for diverting a foot of water which could not be legally defined as water "accustomed" to flow in the Desplaines river. Their answer assuredly would have been: "We convey to you our rights, such as they are, in the Desplaines as a feeder. You are of course at liberty to use it as a feeder as long as you choose, and to dispense with it whenever you choose, it is immaterial to us. If at some future time you or the State should abandon the present system altogether, so that instead of the river feeding the canal, the canal should incidentally feed the river, largely augmenting its flow, and enhancing our water-power, we shall be duly thankful for such good fortune, and will give you bond and security never to bring suit against anybody for such a blessed *diversion* as that."

It is indeed hard to deal with a claim so provokingly absurd and unjust with equanimity and decorum, es-
6200 pecially to one who has watched the water flowing over Dam No. 2 for thirty-five years, and seen the advancement of this poor, forlorn Havens mill to its present condition. Here the State of Illinois at an enormous expense has made this great improvement for the general good. The canal at best has a hard time of it to get along, and sorely needs every dollar of revenue it can obtain from every source. It now happens to possess a large surplus

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of water which is available with profit for hydraulic power. The fall of the canal is such that it can be repeatedly used, first at Lockport, again at Dam No. 1, and finally at Dam No. 2. After the experience of a few years, the commissioners have discovered that the amount of water at their disposal at Joliet is so great, that after leasing all that can possibly be leased to advantage at the dam, and after sending down to the appellee's mill double the amount he had ever received before, there is still a considerable surplus that can only be utilized at all on the plan here brought to the notice of the court. Instead of leaving it as a monopoly in the hands of Adam and the several lessees at Dam No. 2, limiting the area of manufacturing establishments in Joliet to *their particular* district, this scheme operates to distribute the benefit of this hydraulic power over territory well situated for such industries, adjoining the west bank of the canal for a long distance, perhaps a mile or more. But now this appellee, equally grateful and modest, comes
6201 into court and claims, that the water is *his*, and that the water rents must be paid to *him*, instead of going into the coffers of the state. He hardly pretends that the millions that were expended on the works, through which Lake Michigan rolls down to Joliet, were altogether contributed by him. He generously leaves to the state undisturbed the responsibility and expense of repairing, maintaining, superintending and operating the canal. For his own part he is content with the humble post of gobbling up the accruing revenues.

For the reasons, thus presented at length which only the importance of the case could justify, we respectfully

submit, that the judgment of the Appellate Court ought to be reversed.

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Attorneys for Appellant.

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IN THE SUPREME COURT OF ILLINOIS,

Northern Grand Division.

September Term, A. D. 1881.

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WM. DRULEY, *Appellant,*

vs.

WILLIAM ADAM, *Appellee.*

Appeal from Appellate Court of Second District.

ADDITIONAL BRIEF FOR APPELLANT.

We think in our former brief that we have shown, both upon principle and authority, that a riparian proprietor on a natural water course is entitled, and *only* entitled, to receive from the proprietor above *the proper, natural and customary flow of the stream, unimpaired in quantity,* and in the condition of fall necessary to make it reasonably useful to him; but this rule applies only to the water *naturally and customarily* flowing in the stream. It will, perhaps, in this connection be advisable for us to review more fully than we have the

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6204 authorities which were relied upon by counsel for appellees in the Appellate Court, and to consider some of the positions there assumed by them.

I.

Appellee in the Appellate Court made the proposition that "a lower riparian proprietor has the right to the use of all water which may be added to a stream by a

higher proprietor, no matter for what purpose, and it matters not that the addition was made at the entire expense of the upper proprietor and withdrawn before reaching the land of the lower," and in support thereof cited several authorities to which we desire briefly to call the attention of the court. It seems to us that none of them are applicable to the point made in the case at bar.

Tourtolotte v. *Phelps,* 4th Gray, Mass., 370, turned entirely upon the construction of certain deeds of conveyance, and the question in the case is expressly stated to be "the extent of the defendant's right at his shop" under certain deeds of conveyance introduced in evidence. The defendant in that case did not seek to assert nor claim the right to withdraw from the stream water he had added thereto, nor was that question in the case, either directly or indirectly, nor has that court in that case attempted to pass upon this question. The nearest approach in the opinion to the question urged by ap-
6205 pellee will be found on page 376, and is as follows:

"One consideration is important to the present inquiry: It is this: That as each proprietor through whose land a water course passes has a right to the natural flow and descent of the water course subject to the like reasonable use by all others, he *necessarily* enjoys the

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benefit of any improvement made by the proprietors above him. If they increase the head waters for useful purposes by *flowing increased areas of land* and by making reservoirs to preserve surplus waters for dry seasons, and thus increases the volume of water for hydraulic purposes, every lower proprietor *necessarily* enjoys the benefit of it; but in such case no mill owner below the first and nearest the meadow or land flowed can be liable to the land owner for damages. He has done the land owner no wrong by having the increased volume of water at his works, whether he uses it or not; such increased volume of water was inevitable by him; he hadn't caused it, and could not prevent it. He would not be responsible to the land owner for damages caused by flowing his land, because it was not caused by his dam, but by some one above him, for whose doing he would not be responsible."

The improvements here spoken of are not those caused

by an addition to the waters of the stream from other sources, but simply consisted of the construction of reservoirs whereby the surplus water was preserved for dry seasons. Of course the lower riparian proprietors *necessarily* enjoyed the benefit of the reservoirs constructed
6206 above to retain the waters for the seasons of drought. The upper proprietors could not, from the nature of the case, enjoy the benefits of their improvements without conferring corresponding benefits on those below them. One of the questions in the case cited was as to the liability of the defendant for the overflow of a certain meadow land belonging to the plaintiff. It was held that the defendant was not liable, *although* he used the water thus held back and preserved by the dam, for the reason that it was not his dam that penned up and flowed back this water, but the dam of the upper proprietor. It was true that *he* de-

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rived a benefit from the construction of this dam and the preservation of the surplus waters; but he did not build the dam nor in any manner aided in its construction, and it was therefore held that he was not liable for the damages caused by this overflow. Upon the same principle it can be asserted that the appellant here is not liable, even if, as between appellee and the state, appellee is entitled to the waters brought through the deep cut at the summit level, for it was not appellant's dam that caused a diversion of the water from the Desplaines river into the canal, but it was the dam of the people of the State of Illinois, the owners of the canal; and at the point where
6207 appellant drew this water from the canal the water was in the absolute and undisputed possession of the state and subject to the control of the Canal Commissioners, and subject to that control, too, not by reason of any act or assent on behalf of the appellant, but by reason of an act of the Canal Commissioners, for which he was in no manner responsible.

The next case cited by appellee in the Appellate Court in support of his claim to the water procured through the summit level from Lake Michigan was *Webb* v. *Portland Manufacturing Co.*, 3 Sumner, p. 189. There were but two questions in that case, and I quote from the opinion of the court, page 191:

"The first is whether to maintain the present suit it is essential for the plaintiff to show any actual damage. The second is whether in point of law a mill owner having a right to a certain portion of the water of a stream for use of his mill at a particular dam has a right to draw off the same or any less quantity of the water at a considerable distance above the dam without the consent of the owners of other mills on the same dam."

It will be seen that neither

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of these questions affects the question at issue, nor is the question at issue in any manner discussed in the opinion.

It was held in that case that the defendant by drawing off the water, to which he claimed to be entitled, from
6208 the pond at some distance above the dam, necessarily decreased the amount of the head which the mill owners located at the dam would otherwise have, and to that extent they were injured, and for such injuries were entitled to maintain their bill. It was also claimed in that case that the defendants had fully indemnified the plaintiff from injury, and in fact conferred a benefit upon him by creating a reservoir higher up the stream so as to be capable of affording a full supply in the dryest seasons: but it was held that the plaintiff had no interest in such dam, could not compel its maintenance, nor could he be compelled to take any benefits that he might necessarily derive therefrom in lieu of his natural right to a full head of water at his dam.

The third case relied upon is that of *Swindon Water Works* v. *W. & B. Canal Co.*, 14 Moaks, (Eng. R.), 86, but that case has not the remotest analogy in any respect to the case at bar. The Swindon Water Works Company claimed the right as upper proprietors of the stream to divert all the water for the purpose of supplying the town of Swindon, and by this means prevent any portion thereof finding its way to the lower proprietor, which the English House of Lords very properly held they had no right to do.

6209 The next case cited is that of *Batavia Manufacturing Co.* v. *Newton*, 91 Ill., 230. But no such question was before this court in this case, nor did this court even by way of argument say anything in that case that can be

properly construed in support of such a proposition. The only con-

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tention between the parties was as stated by Mr. Justice Scholfield (page 234):

"The plaintiff claims a preference of twelve hundred square inches, while the defendant contends that it is entitled to but six hundred square inches. The ruling was in favor of the contention of the defendant."

And the settlement of this question depended entirely upon the construction of certain deeds of conveyance which had been introduced in evidence and formed a part of the record.

By way of illustration, Justice Scholfield uses the language relied upon by appellee, page 241; but the court will see that the *illustration* is with reference to water that was supposed to have been added to the natural stream, had commingled therewith and had reached *the joint possession* of the riparian proprietors at their *common dam*, and simply asserts that such contribution was to the common pond, in which each were jointly interested, and that such fact would not entitle the person supplying the same to a PREFERENCE IN ITS USE AT THE DAM; but even *that* question was not before the court in that case, much less can it be claimed that this illustra-
6210 tion supports the claim made that if an upper riparian proprietor has added to the natural waters of a stream by artificial means, and for his own purposes, he has no right, for his own use, to withdraw the same or a like quantity from the stream *before* it reaches the possession of the lower proprietor.

The next is that of *Eddy* v. *Simpson*, 3 Cal., 249, and comes nearer than any other case cited in support of the proposition contended for. but still, when carefully considered, falls far short, and unfortunately for the appellee has been expressly held by later cases in the same court not to bear the construction sought to be placed upon it, and if ca-

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pable of bearing such construction, has been expressly overruled by the cases heretofore cited by us. In that case it was held that the water which it was sought to withdraw from the stream had, without the agency of the

defendants found its way into Shady Creek, *joining the waters then in the possession of the plaintiffs, and became a part of the body of water used and possessed by the plaintiffs,* that the defendants had abandoned the water and lost all right therein, and therefore had no right, *after it had come into the possession of the plaintiffs,* to withdraw the same from the plaintiffs' possession. It seems to us that if it was true, as found in the case last cited, that the waters had been abandoned by
6211 the defendant and allowed without his agency to flow into possession of the plaintiffs, that the defendant would have no right, either natural or legal, to withdraw the same from the possession of the plaintiff. And this concession in no manner militates against the claim made by us. Here the water was withdrawn by the party who supplied the same *before* it came into the possession of the plaintiff. What he complains of is that the water *was not permitted to come into his possession.*

It was claimed by counsel for appellee in the Appellate Court, and will undoubtedly be insisted upon here, that the California cases are not of a general applicability for the reason that they are, as it is claimed, founded on the situation of the parties and the customs and laws of California. From the peculiar situation of many of the water rights in California, the precise question at issue has arisen more frequently in that state than in all other localities combined; but the Supreme Court of California distinctly assert that they base their opinion *upon common law principles,* applying to the

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peculiar condition of things in California well established rules of the common law. At common law a person in order to be entitled to the use of water in a running stream must be a riparian proprietor; that is, he must own the soil upon either one or both of the banks of the
6212 stream, and unless he was such owner he had no right to claim any interest in the use of the water, unless such interest had been acquired by grant or prescription. In California, however, in most instances the fee to the streams at the time this question arose was in the Government. Strictly speaking, there were no riparian proprietors except the Government, but from the earliest settlement of the state the person who, for the purpose of

operating mines, or for irrigation, first dammed up and controlled the waters of a stream was treated and considered as having a proprietary interest in the use of such water as against all persons other than the Government, or those claiming under the Government. The development of the mines of California required the protection of parties who had expended large sums of money and a large amount of labor in controlling for useful purposes the waters of a running stream. And so the courts, applying common law principles to the existing state of facts, say that they will treat the first appropriator of the waters of a running stream, in all cases where the Government is the proprietor, as the person entitled to the use of such waters; and this, too, notwithstanding he may have no interest in the soil over or through which the stream runs. Such ruling was a proper application of well established rules of justice to the state of facts there found to exist. Such being the
6213 case, and the first appropriator of the waters of a running stream being treated and considered as the true owner thereof, so far as the use of

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such waters was concerned, the question in the case cited by us from California arose, and as the Supreme Court of California say, by the application of common law principles they find that a person who has added to the waters of a stream may draw from such waters a like amount. The only departure from strict common law principles being in treating the first appropriator of the waters of a stream as the true riparian owner as against all persons except the Government and those claiming by grant from the Government, such persons so treated as the true owners being entitled to the *same* rights to be determined in the *same manner* as persons who are riparian proprietors at common law.

II.

We desire also to call the particular attention of the court to the facts appearing in several of the cases referred to in our former brief; but, before doing so, will state as a proposition which we think is fully sustained by the authorities, that in no case is a party liable to a

lower land owner for diverting water if actual damage has not been done.

6214 *Wadsworth* v. *Tillotson*, 15 Conn., 366.
Gillet v. *Johnson*, 30 Conn., 180.
Seeley v. *Brush*, 35 Conn., 419.
Chatfield v. *Wilson*, 31 Vt., 358.
Gerish v. *New Market Mfg. Co.*, 30 N. H., 478-483.
Pollitt v. *Long*, 58 Barber, 20.
Dilling v. *Murray*, 6 Ind., 324.
Williams v. *Mooreland*, 2 Barn. & C., 910.
Mason v. *Hill*, 3 Barn. & Add., 304.
Mason v. *Hill*, 5 Barn. & Add., 1.
Embry v. *Owen*, 6 Ex., 358.
Wood v. *Wadd*, 3 Ex., 748-781.
3 Kent Com., 441, note 1, 12th Ed.

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Of course this rule does not apply if there has been such a diversion of the water as would, if persisted in for twenty years, grow into a prescriptive right to the use of the water thus diverted, to the prejudice of the lower proprietor, for in such case the law implies damage, though none be shown. We do not contend that a lower riparian proprietor is bound, in order to be protected in his rights, to be in the actual use of the water power. The doctrine seems to be well established that an *improper* or *unreasonable* diversion of the NATURAL waters of a stream works an injury to the lower proprietor, even if he is not in a condition at the time of such
6215 diversion to apply the water to his own use, for the reason that such diversion, if continued in for a period of twenty years, may result in a prescriptive right to his prejudice. But this rule only applies to the NATURAL waters of the stream, and it *only applies in cases where the diversion is an unreasonable one.* This doctrine seems to be conclusively settled by Chief Justice Shaw, in *Elliott* v. *Fitchburg R. R. Co.*, 10 Cush., 191. In that case one Clark was an upper, and Eliott, the plaintiff, a lower riparian proprietor upon a stream. Clark had deeded to the railroad company a perpetual right and privilege to make and maintain a dam and reservoir on this stream and to draw and use the water therefrom. In pursuance of the right thus conveyed the railroad company had erected a dam across the stream below a spring on Clark's land, by such dam had made a reservoir

and inserted a pipe therein from which they took the water from the reservoir for the purpose of supplying their depot at Sherly, and used the same in supplying their locomotives, and for other similar purposes, the defendants proved that Clark's meadow, through which the creek run, was wet and springy, and that

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he had cut ditches across the meadow to the brook, *thereby increasing the flow of water to the brook; and it was further proved that there is no outlet for the water of said meadow, except into the brook,* and that the meadow
6216 was situated below the dam. Page 102.

"The plaintiff contended that if the jury were satisfied of the existence of the brook as alleged, and the diversion of the water therefrom by the defendants, he was entitled to a verdict for *nominal* damages without proof of *actual* damage; but the presiding judge instructed the jury that unless the plaintiff suffered *actual* damage in consequence of the diversion, the defendants were not liable in this action. *In connection with this instruction the judge further instructed the jury that if they believed that the defendants by excavating said reservoir, and spring above the dam, or that said Clark by digging said ditches had increased the flow of water in said brook equal to the quantity of water the defendants had diverted therefrom, then the defendants were not liable in this action.* The whole court are of opinion that this direction was right in both particulars."

It has been suggested by counsel for appellee that this case was determined upon the peculiar statutes of the State of Massachusetts in relation to mill rights. In this counsel are in error. The court say, after having considered the question raised upon the first direction to the jury, (that is, that the plaintiff must show an actual damage in order to be entitled to recover):

"We consider the other direction correct also, as we
6217 understand it. The question was not (if the defendants have caused damage to the plaintiff amounting in law to a disturbance of his right, for which an action would lie) whether it would be barred by an advantage of equal value conferred in the nature of a set-off, *but whether the*

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improvements of Clark upon his meadow taken together

as a whole, including the dam and ditches as parts of one and the same improvement, any damage was done to the plaintiff; and this we think was correctly so left.

It may, perhaps, be proper to guard against misconstruction in considering what are the general rights and duties of persons owning lands bounding on running streams by the general rules of law and for general purposes, that some alterations of these rules may be effected in Massachusetts, by the act of legislation on that subject in respect to mills, and the constructions which have been judicially put upon such legislative acts. * * * It is not necessary, however, to go into this subject, but merely to say that the rights to streams of running water upon which the present question turns *are not dependent upon or affected by the mill acts.*"

It was insisted by the counsel for appellee in the Appellate Court that the case of *Whittier* v. *Cocheco Mfg. Co.*, 9 N. H., 454, was not in point, for the reason as contended that the manner of the enjoyment of the water by the defendants was consistent with the manner in which
6218 they had used the same for fifty years, and that they were not obliged to pen it back for plaintiff's benefit. The case will be better understood by the following diagram?

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The Cocheco river runs, as we understand the case, in an easterly direction from its source to its mouth. At the point designated Waldron's Falls there was a dam, and on the northerly side of the river the defendants and their grantors had, for a period of fifty years, been in the enjoyment of a certain water power privilege. On the southerly side of the river the plaintiff, by virtue of the conveyance to him, became seized of a water power privilege, under which he was entitled to a portion of the water formed in the mill-pond above the dam that furnishes the water power under which the defendants claimed. Under these circumstances the defendants, to increase the flow of water to their water privilege, had constructed a reservoir at Bow pond, some distance above the dam, at Waldron's Falls, and in this reservoir the water was dammed back and kept for use during a season of low water. Subsequent to the
6219 time that the plaintiff acquired his water power privilege at the southern end of the dam, and subsequent to the construction of the reservoir by the defendants at

Bow pond, on the northerly side of the river, the defendants purchased certain cotton mills at a point about three miles lower down the river, at which point they constructed another dam for the purpose of supplying their cotton factory with water power, and during low stages of water opened their gates at the dam at Waldron's Falls and allowed the water, which they had penned back in the reservoir at Bow pond, to flow past the dam at Waldron's Falls to the dam at their cotton factory and use the water at the latter point. The action was commenced in 1831. It appeared from the evidence, first, that the defendants and their grantors had for more than fifty years used a portion of the water of the Cocheco river.

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at Waldron's Falls at the northerly side of the dam. It further appeared that in February, 1819. twelve years before the action was commenced, the plaintiff's grantors became seized of a certain mill privilege at the south end of the dam. It further appeared that the reservoir at Bow pond was constructed in 1825, six years *after* plaintiffs' grantors had become seized of the water power privilege at the south end of the dam at Waldron's Falls; and at this time the defendants and their grantors used the water power privilege which they were entitled to at the northerly end of the dam at Waldron's Falls, so that the reservoir, which supplied
6220 the additional water power in seasons of drought, was constructed after the rights of the plaintiff had accrued, and the attempt to use the water thus dammed back at the cotton factory, three miles below Waldron's Falls, was not made until long after the plaintiff or his grantors had acquired their water power privilege. The court held that the defendants had a right to open their gates at Waldron's Falls and to allow the water to which they were entitled, and the water which they had supplied to the stream by means of the reservoir at Bow pond, to flow down past the dam at Waldron's Falls to their cotton factory three miles below; provided, of course, that they use no greater quantity than they would have used but for such change in the location of the place where the same was used. We can do no better, upon this subject, than to quote from the opinion of the court, page 458:

"The next question rises upon the instruction to the jury, that the defendants might draw through their gates in dry seasons even a larger quantity than they had been accustomed to draw prior to 1828, *if the excess was furnished by themselves by means of a reservoir they had constructed above."*

The court will see that, as the action was commenced in

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1831, no right by prescription existed to this excess of water. It depended entirely upon the legal right of the
6221 defendants to use water which they themselves had provided, and by their own means had added to the waters of the stream. On page 459 the court continues:

"This part of the case depends upon some special circumstances, probably not often existing. The defendants appear to have provided a supply of water at Bow pond, the outlet of which empties into the Cocheco river, for the use of their factories in time of drought. There is no complaint that in making provision for this supply they have infringed any rights; if there was, it could not be tried in this case. In order to use this water at their factories in Dover it must pass Waldron's Falls, and the question is whether the defendants are obliged to shut their gates at that place so that the plaintiff may have the use of the additional water thus provided as it passes those falls, or to use it in part themselves there in order that the plaintiff may use it with them, or whether they may suffer their gates to stand open, *and this additional water to pass without use by any one. On the case before us, the plaintiff has no right to have this water pass Waldron's Falls. The defendants may pen it back and permit it to evaporate without suffering it to come into the Cocheco river.* It is derived from a reservoir provided by them for their own purposes, and the plaintiff can maintain no action
6222 for depriving him of the use of it in that mode. On what principle, then, is his right infringed if they let the water into the river, hoisting their gates at Waldron's Falls and permitting it to pass by? On what ground are they obliged to pen it up there for the plaintiff's benefit? Suppose, instead of a mill the plaintiff was the

owner of a meadow lying upon the Cocheco above Waldron's Falls, which in or-

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dinary stages of water, in the summer, prior to the construction of the reservoir at Bow pond, had not been affected by the water, and that if the defendants were now to let the water out of the reservoir in the summer and pen it up by the dam at Waldron's Fall until they had occasion to use it for their works there, the plaintiff's meadow would be overflowed thereby and injured, he would most clearly have a right to complain of that, and his complaint would be in substance that the defendants did not open their gates and let the water pass, but by means of their dam they threw the water back upon his land. This may serve to show that he cannot object to the act of the defendants in drawing the water through their gates, unless he can show a right to the use of it and a duty upon the part of the defendants not to deprive him of that use. As the owner of a mill site on the river, *he would have been entitled to the use of it from the mere fact that it run in the channel,* HAD NOT THE DEFENDANTS PROVIDED IT AND TURNED IT INTO THE RIVER
6223 FOR THEIR OWN USE."

And, again, page 461:

"We have considered this case as if Watson & Son (the plaintiff's grantors), when they conveyed in 1819, could grant the right to use the southerly end of the dam all the water ordinarily running in the stream beyond the quantity which the defendants and those under whom they claim had been accustomed to use on the northerly side."

So the court will see that this case is directly in point and fully sustains the claim we make. It did not turn upon the fact that the defendants had by use acquired a right to the water in the stream to the exclusion of the plaintiff, but the plaintiff was treated as being entitled to a portion of the

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water running in the stream for his mill site at the southerly end of the dam at Waldron's Falls, and it is expressly held that he has no right to complain of diversion of water from this stream, and a refusal to permit it to pass over the dam at Waldron's Falls *in case such water has been supplied by the defendants.*

The case of *Society for Manufacturing* v. *Morris Canal Co.*, Saxton (N. J. Ch.), 157, is so nearly identical in all particulars with the case at bar that we feel justified in quoting therefrom more fully than in our former brief. We desire here to say there is nothing in *that* case, as claimed by appellee's counsel in Appellate Court,
6224 from which it can be inferred that the Canal Company used the Rockaway as a part of their canal the *whole* distance from the points at which the waters of Lake Hopatcung and Green pond were brought into the Rockaway to the point where the same was withdrawn for canal purposes. As these points were necessarily distant from each other, the *probabilities* are that the water from either one or the other, or perhaps both of these sources, was introduced into the Rockaway at a point where the Rockaway itself was *not* used as a part of the canal, but we apprehend on principle it can make no difference how this fact is, *the important inquiry is, were such waters introduced by the* SAME PERSON *who, for his own purposes* (*at a point where he had control of the stream*) *withdrew the same; and if so, had such person the right to withdraw from the stream as much as he had added thereto?*

The chancellor says, p. 188:

"I now propose to consider the right of the defendants, or how far, if at all, they interfere with those of the complainants; and whether, in the exercise of those rights any injury has been done to the

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plaintiffs, and whether, in the further use of them, the plaintiffs will be so *certainly* and *permanently* injured as to justify the interference of the court at this time by injunction.

6225 "And first as to the rights claimed by the defendants; I do not understand them as claiming a right to the *ad libitum* or unrestrained use of the water of the Passaic or its tributaries, subject to the payment of a compensation or damages to the society for establishing useful manufactures. * * *

"They claim, under the act of incorporation, the right to construct a navigable canal from the Delaware to the Passaic; *they claim the use of the waters of Lake Hopatcung and of the extra water of Green pond; they claim to bring the water from the Hopatcung into the Rock-*

away to make use of that river as part of the canal, and to take out of it again water for the use of the canal— NOT THEREBY DIMINISHING THE ORDINARY AND NATURAL FLOW OF THE WATER AT THE GREAT FALLS OF PATERSON.

"It does not follow that because a person as riparian proprietor has a right to the flow of a stream and to its use for the purpose of manufacturing or any other purpose requiring the use of water, that therefore no other proprietor or person shall be at liberty to use, for the same or like objects, the water above him. This would be contrary to natural justice and the reason of things. Each one has a right to the use, provided that in the exercise of such right he does no injury to his neighbor. 2 Blac. Com., 403.

6226 "Now if the Morris Canal and Banking Company make *such use of the waters of the Passaic, or any of its tributaries, as to occasion no* DIMINUTION *in the flow of the stream at the place*

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where it is used by the complainants; and if in such use no injury whatever is done to the complainants, are they not exercising an ordinary and well established right? Does not the same privilege that is accorded to others also belong to them? It appears to me unquestionable that the *defendants have such right* as against the complainants, subject to the condition already stated.

"But the Morris Canal Company *claim the further privilege of introducing* into the Rockaway the waters of the Lake Hopatcung, and of one of the branches of the Raritan, and then of taking out of the Rockaway below so much water as may be necessary for the purposes of their canal; *averring that the waters of the stream will be thereby in no wise diminished.*

"The water thus taken out, it is admitted, is not to be returned until it shall have passed the great falls at Paterson. They say that the supply of water thus brought in, together with the extra supply which they are authorized to take from Green pond, will in times of drought afford the society *a more copious flow* than they would otherwise have, and therefore that it will be a benefit. On the other hand it is contended by the society that
6227 the Canal Company have no authority thus to commingle different streams and different rights; that they are entitled to the flow of the *identical* stream of water,

not only without *diminution* but without *alteration;* that if the claims of the company in this behalf are sustained, the supply afforded by these substituted streams may in time diminish, and the property and immunities of the company be jeopardized or ruined.

"This is *supposed* to present a question of *novelty* and *importance.* It certainly is *not* the case of a *simple diversion*

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of the stream for necessary purposes, returning it again to its natural channel when those purposes shall have been answered; but would seem to be rather a *substitution of part of one stream for part of another.* The principle that assigns, to everything capable of ownership a legal and determinate owner, is wise and salutary and productive of great ends of civil society. This principle, however, can only be applied to streams of water in a limited sense. *There is no such thing as actual property in running water.* It is transient in its nature and must be permitted to flow for the common benefit. The interest is rather of a *usufructory* kind, but not the less absolute or vested on that account.

"To say, then, that a person entitled to the flow of a
6228 stream through his land, is entitled to the flow of the *very identical substance* that issued from the original source, is an assertion of right not easily sustained. *It would be tantamount to the ownership of the particular water itself, which cannot be.* I do not understand Lord Ellenborough, in *Bealy* v. *Shaw,* to carry the doctrine thus far. His principle is, that every man has a right to the advantage of a flow of water in his own land, *without having its* QUANTITY *diminished, or its* QUALITY *altered by the operations of those who might be above him on the same stream. It is not* pretended that the QUALITY of the water to be let in from Lake Hopatcung and other sources is in any way different from the water of the Rockaway. IF THEN THE DEFENDANTS TAKE FROM THE ROCKAWAY NO GREATER QUANTITY OF WATER THAN THEY BRING IN, (and they claim a right to do no more,) WILL NOT THE SOCIETY ENJOY THEIR PRIVILEGE WITHOUT DIMINUTION OR ALTERATION, OR CAN THEY IN ANY WAY BE INJURED?"

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This case, as the court will see, was decided upon the

exact principle we contend for. It did *not* turn upon the fact that the Rockaway was used as a part of the canal the entire distance from the point where the water was introduced to the point where it was withdrawn. Indeed, there is nothing in the case to indicate that the *bed of the stream* was used as a canal at all, but the indica-
6229 tions are that the sense in which the court speaks of the claim made by the Canal Company to the use of that stream as a part of the canal, *is its use as a feeder,* for in reading the statement of the case and the extended and able argument of the counsel, it will be found that it is *nowhere* stated that the bed of the stream was used *as a part of the bed of the canal.* On the contrary, Mr. Wood, of counsel for the Society, claimed, p. 167, that the Canal Company could have accomplished their purposes and avoided all trouble *by passing the water from Lake Hopatcung and other sources over the Rockaway in an aqueduct,* and this claim seems to have been acquiesced in by all the counsel on both sides.

The California cases already referred to establish the right of the Canal Commissioners to the surplus water turned into the Desplaines from Lake Michigan as clearly and conclusively as it is possible for that right to be established by the uniform decisions of any one court. The opinions of this court have always ranked high with the profession, and one of them was rendered by Mr. Justice Field, now of the Supreme Court of the United States, whose reputation as a learned jurist is second to none, and it would seem upon principle that as a riparian proprietor is *only entitled to the water that naturally runs in the stream,* that he has no right
6230 to complain if an upper proprietor takes from the stream a like or less quantity than that which he has added thereto.

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The same question has been since repeatedly reaffirmed by the Supreme Court of California.

III.

The State of Illinois by making the deep cut at the summit level has caused the waters of Lake Michigan to flow directly through that deep cut into the canal. This water, as the act shows, was brought from Lake

Michigan in pursuance of the original plan for the construction of the canal, and one of such purposes always has been to supply water for manufacturing purposes in case a surplus of water is found in the canal for that purpose; and all of the acts of the Legislature recognize this fact and impose upon the Canal Commissioners, and have for all time, the duty of realizing as large a revenue as possible from this source for the purpose of keeping up and maintaining the canal. This water from Lake Michigan is turned into the canal and into the Desplaines river by artificial means, and is, at least until it arrives at Lockport, an artificial water course, entirely within the control of the Canal Commissioners, subject to be by them diverted in such a manner as the law may authorize, or as they shall deem best for the interests of the State, and for such diversion, no matter
6231 whether made for the purposes of supplying the canal with water or for the purpose of furnishing power for manufacturing purposes, the appellee has no right to complain, and would have no such right if the Canal Commissioners should by an artificial channel receive the water at the place where it is discharged through the Norton mill-race, and conduct the same in an artificial channel to the canal, or to the point where the river and canal are united.

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We don't understand that appellee's counsel insist that in such case they would have any right to complain. In other words, they concede the right of the Canal Commissioners to divert this surplus water from Lake Michigan at any point BEFORE it reaches the Desplaines River, but insist that it cannot be diverted after it has reached the bed of that stream. We can see no difference in principle between the diversion *before* and a diversion *after* the waters have reached the Desplaines River, provided always this diversion is made before the artificial waters thus commingled with the natural waters of the stream came into possession of appellee. This artificial water is added to the stream, not for the benefit of appellee, but for the benefit of the canal and for canal purposes. They were withdrawn from the stream by the same party that supplied the same and for legitimate purpose. It has even been held that the right of prescription cannot be asserted in favor of the use of

6232 such water, but that the original proprietor may alter the course at any time to suit his pleasure, even after a period of twenty years.

Greatrex v. *Hayward,* 8th Exc. (W. H. & G.), p. 292.
Wood v. *Waud,* 3 Exc., 748.
Washburn on Easements, X, pp. 294-6.
Arkwright v. *Gill,* 5 Mees. & W., 203.
Greatrex v. *Hayward,* 8 Exc. (W. H. & G.), p. 290.
Wood v. *Waud,* 3 Exch., 748.
Angell on Water Courses (6 Ed.), Sec. 206.

But the upper proprietor may acquire an easement to the flow of an artificial stream over the lands of a lower proprietor, and this, too, although the lower proprietors has no right to demand that the artificial water course should be maintained.

Angell on Water Courses (6 Ed.), 206A.

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Rawstron v. *Taylor,* 11 Exch., 378.
Broadbent v. *Ramsbotham,* id., 610.
Solomon v. *Vintner Co.,* 4 H. & N., 593.
Sampson v. *Hoddinott,* 1 C. B. N. S., 590, 606.

In such case the upper proprietor would not be liable for a diversion of the water formerly running in the artificial water course.

Rawstron v. *Taylor, supra,* which is a leading and important case on this subject.

6233 Counsel for appellee in the Appellate Court seemed to rely upon the case of *Wood* v. *Waud,* 3 Exch., 748, as establishing their right to the water added to the Desplaines River from Lake Michigan through the deep cut in the canal.

This book is not to be found in the library, but a full report of the case will be found in Washburne on Easements and Servitudes (2d Ed.), p. 370, star p. 297, from which we cite as follows:

"In *Wood* v. *Waud,* 3 Exch., 748, the plaintiff and defendant each had mills upon a small natural stream. A part of the supply of water for these was derived from two different mines, from one of which a stream had flowed for sixty years by means of an artificial outlet dug by the owner of the mine for the purpose of draining his mine. From the other mine a stream of water flowed which was caused by pumping. These streams flowed through separate sloughs into the natural stream.

One of these passed underground through the defendant's land before reaching the plaintiff's land, and then through that into the stream. The other did not pass through the plaintiff's land at all before reaching and discharging itself into the stream.

The action of the plaintiff was for diverting, or im-

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properly interfering, by the defendant, with the enjoyment by the plaintiff of water flowing from these sloughs. Whatever he did in this respect was done upon his own
6234 land, before they had entered and united with the waters of the natural stream, and before the water of the slough that run through the plaintiff's land had reached the latter.

The court held that if the mine owner had seen fit to stop the supply of water, or divert it, so that the water from the mines should no longer reach the works of the mill owners, he would not have been liable therefor, adopting the doctrine of *Arkwright* v. *Gell*. As between the plaintiff and defendant no prescription had been set up or relied on on either side, neither had any right to complain of any use which the other should make of the water on his own land, before it reached that of the other, provided he did not foul it or turn it into the stream heated so as to injure the party below. 'Each,' in the language of the court, 'may take and use what passes through his land, and the proprietor below has no right to any part of that water until it has reached his own land. He has no right to compel the owners above to permit the water to flow through their land for his benefit, and consequently has no right to action if they refuse to do so. * * * If they polluted the water so as to be injurious to the tenant below the case would be different.' But as soon as the water from either of these sloughs had become united with that of the natural stream in its natural water course it par-
6235 took of the character and incidents of a natural stream. Pollock, C. B., in giving the opinion of the court in the above case, gives, as an illustration of the doctrine which he sustains, the case of a drain made through a man's land for agricultural purposes, which

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had continued for twenty years, whereby the water from his own land was discharged upon that of another. This

would not give a right to the latter to insist upon its continuance and thereby to preclude the land owner from altering the level of his drain for the greater improvement of the land. The state of the circumstances in such cases shows that one party never intended to give nor the other to enjoy the use of the stream as a matter of *right.*"

"The above makes this important distinction between the right of the lower riparian proprietor to water flowing in a natural stream and to that created and flowing in an artificial one for a temporary purpose, that in the former case an action will lie for its diversion by an upper proprietor, although done on his own land, whereas in the latter case no action will lie for the diversion of the water unless the same shall have reached and become part of a natural stream."

From this it will be seen that the question at issue was
6236 not presented in that case, and so far as it goes it is an authority in our favor.

It establishes conclusively our right at least on our own land, to divert the waters of our artificial water course.

But the artificial waters considered in this case were not contributed by *either Wood or Waud,* but by *another, who was not a party to that suit.* So that while it may be true that as between Wood and Waud *neither* would have had the right to withdraw from a natural stream water, or a like quantity of water, that had been added thereto by *another,* this case does not decide that if *either* had added artificially to the waters of a stream that he might not, on his own premises, withdraw a like quantity.

If, in that case, artificial water had been added to the nat-

ural stream by means of an artificial channel by the defendant for his own purposes, and for his own use withdrawn from the natural stream before it reached the possession of the plaintiff, and, if, under such circumstances, the court had held that he had no right so to do, the case might support the position assumed by appellee; but as it is it falls far short of so doing. The most that can be claimed on the strength of that case is that the defendant would not have the right of withdrawing,

to the prejudice of the plaintiff, water that had been
6237 supplied to the natural stream by a stranger to him, neither at his request nor through his agency; that is, the stranger who thus added to the waters of the stream by artificial means, not seeking to withdraw it for its own use, had abandoned it for the use of the several riparian proprietors, and for that reason the several riparian proprietors were interested therein to the same extent as if supplied from natural sources, the stranger, however, being at liberty to divert the artificial stream at any time. It was his water, and he had a right to permit it to flow into the natural stream, or elsewhere, as he saw fit.

IV.

Appellee claimed in the court below that no water had been added to the River Desplaines by appellant or those from whom he claims; that the water which was added was by virtue of the improvement of the summit division of the canal; that the purpose of this improvement was *not* to supply water to the canal, etc.; and in support of the position thus assumed, counsel cited *a portion and a portion only* of the preamble of the Act of 1865, under which the deep cut was made.

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The portion cited read as follows, viz.: "Whereas, it has been represented that the City of Chicago, in order
6238 to purify or cleanse Chicago River by draining a sufficient quantity of water from Lake Michigan directly through it and through the summit division of the Illinois and Michigan Canal, would advance a sufficient sum of money to accomplish this desirable object." Here ends the quotation, and counsel in commenting on it say this showed the object of the act to be to purify the Chicago River and to accomplish *this end* water was to be drawn through the summit division of the canal.

It is evident the Appellate Court did *not* read the act or the preamble thereto, but took it for granted the quotation was the *whole* of the preamble, and hence was led into error as to the true object of the passage of that act.

If the *sole* object of making the deep cut was to drain Chicago River, there would be some force in the position taken; but even then, if the water was resumed

before it passed to the point where appellee was entitled to use the same, no action would lie therefor. But it is hardly necessary to discuss that question, as a perusal of the whole preamble and the act itself shows that the object of making this deep cut was to supply the *canal itself with water from Lake Michigan.*

The *whole preamble* is as follows:

"Whereas, it has been represented that the City of Chicago, in order to purify or cleanse Chicago River by
6239 drawing a sufficient quantity of water from Lake Michigan directly through it and through the summit division of the Illinois and Michigan Canal, would advance a sufficient amount of funds to accomplish this desirable object; *and whereas, the original plan of said canal was to cut down the summit so as to draw a supply of water*

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for navigation directly from Lake Michigan, which plan was abandoned, for the time being, after a large part of the work had been executed, ONLY *in consequence of the inability of the state to procure funds for its further prosecution;* and whereas, under the law creating the trust, the plan of the summit division of the canal was changed, the level being raised so as to require the principal supply of water to be obtained through the Calumet feeder, subject to serious contingencies, and by pumping onto the summit with hydraulic works at Bridgeport; now, therefore,

Be it enacted &c. Sec. 1. *That to secure the completion of the summit division of the Illinois and Michigan Canal upon the original deep cut plan, &c.*

Sec. 2. The canal shall be constructed on the plan adopted by the Canal Commissioners in 1836.

Sec. 3. Provides for right of way.

Sec. 4. The amount expended (not exceeding the sum of $2,500,000 and interest) in deepening summit division on the plan adopted by the Canal Commissioners in 1836 shall be a lien upon the canal and its revenues.

6240 Sec. 5. The State may at any time relieve this lien by refunding to the city the amount expended.

The title to this act, as well as the preamble and the act itself, is worthy of consideration, and shows what the *object* of the act was, viz.:

"*An act to provide for the completion of the Illinois*

and Michigan Canal upon the plan adopted by the State in 1836."

In 1871, shortly after the great fire in Chicago (see Session Laws, 1871-2, p. 170), the General Assembly, under provisions of Section 5 of the Act of 1865, refunded this money to the City of Chicago and discharged this lien.

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So it will be seen that the *primary* object for deepening the summit division was obtaining a supply of water *for the canal,* directly from Lake Michigan. To complete the canal ON THE ORIGINAL DEEP CUT PLAN, adopted in 1836, the *secondary* object was to furnish drainage to Chicago. To accomplish the *primary* object the City of Chicago was authorized to *complete the canal on the original deep cut plan,* and was given a *lien* on the canal and its resources for its repayment. The drainage of Chicago was a mere *incident,* a *secondary* consideration.

In this connection and for the purpose of showing more conclusively what was intended by the Act of 1865, authorizing the deep cut on the summit level, it may be
6241 of interest to examine the Act of 1836, providing for the construction of the Illinois and Michigan Canal. (Vide Sess. Laws, 1836, p. 145.)

We quote from Sec. 16 of that act as follows:

"The said canal shall not be less than forty-five feet wide at the surface, thirty feet at the base and of sufficient depth to insure a navigation of at least four feet, to be suitable for ordinary canal boat navigation, TO BE SUPPLIED WITH WATER FROM LAKE MICHIGAN and such other sources as the Canal Commissioners may think proper, &c."

To be supplied with water from Lake Michigan for what purpose? For *navigation* simply? No, for ALL purposes; and one of the purposes *always* contemplated in making such improvements is the supplying of water power when practicable, and thereby aid, from the revenue thus derived, in maintaining, at the least possible expense to the public, these desirable enterprises.

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V.

We desire to consider briefly the opinion of Mr. Justice Pillsbury, of the Appellate Court, as we presume

that opinion will, to some extent, be the basis of the argument that may be made in this court on behalf of appellee.

Justice Pillsbury says (page 11 of abstract) that:

6242 "In construing contracts courts will examine their provisions in the light of the circumstances surrounding the parties, and the subject matter when made."

This is undoubtedly true, and is supported by the authorities cited by us on page 49 of our former brief.

To use the language adopted by Mr. Justice Caton in *Hodden* v. *Shentz*, 15 Ill., at page 582:

"The law must give a common sense construction to grants, and consider the state of things, and the consideration in view of the parties at the time the grant is made which move them to its execution and acceptance."

It becomes, then, for the proper application of this rule, necessary to inquire what the considerations are that were in view of the parties at the time the Havens' release was executed. It is a part of the conceded facts in this case that the Illinois and Michigan Canal was completed and opened for navigation in the spring of the year 1848. (See page 3 of abstract.) So that prior to that time there had been no diversion of the waters of the Desplaines River by the canal authorities. That diversion did not commence until the 20th day of April, 1848.

Canal Trustees v. *Haven*, 5th Gilm., p. 554.

So that of course up that time there can be no claim or pretense that any water was allowed to *spill* from the

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level into the Desplaines River at Lockport. The cases of *Haven* v. *The Canal Trustees*, decided in the 5th of Gilman, was brought to the October Term of the Circuit Court of Will County for the year 1848, and was tried upon an agreed state of facts fully appearing in the opinion, from which, among other things, it appeared (*Canal Trustees* v. *Haven, supra*, p. 554) that

"on the 20th day of April, 1848, the defendants (Canal Trustees) diverted, or caused to be diverted, into the canal for the use of said canal, from the natural channel of the river, the whole or the principal part of the waters of said river by turning the same from the basin in said river by means of a dam on Section 9, being a

canal section, and about half a mile above the dam of said plaintiffs, so that the plaintiffs are wholly deprived of the use of the water at their said mills, and have not since been able to run their machinery. From the time of putting this portion of the canal under contract in 1838, and up to the year 1843, there had been no change in the original plan *of supplying the canal with water from Lake Michigan by the deep cut as originally contemplated,* and all contracts let previous to 1843, and all the arrangements of said canal, were made notoriously upon the plan aforesaid, *and with a view to supply the canal from Lake Michigan."*

6244 In that case the Supreme Court decided that Section 16 was not included in the lands reserved from sale and granted to the State by the Act of 1822; so that the provision of the Legislature reserving a right of way for the canal, did not apply to Section 16, and on the state of facts presented in that case this court held that the Havens were riparian proprietors upon one side of the stream, and as such were entitled to the use of one-half of the natural flow of the stream. (p. 558.) This same case was again taken to the

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Supreme Court of this State upon the assessment of damages, and is reported in the 11th Ill., 554, and the judgment for damages reversed for the reason that they were excessive and that the amount which the Havens were entitled to recover, as the case then stood, was merely *nominal.* The Havens' contract, or lease, which is set forth in this record, was a settlement of this suit, and the preamble to the contract shows that it was intended as a settlement of the matters in controversy in *that* suit and for damages to the Havens occasioned by diverting the waters of said river from their mill and applying it to the use of the Illinois and Michigan Canal above said mill. When we take into consideration the agreed state of facts in the case reported in the 5th Gilman and the reference that is there made to the abandonment of the project for supplying the canal with water from Lake Michigan, and the further consideration that the Havens were then complaining that the

6245 canal was not thus supplied with water, but that on the contrary the trustees were using the natural water of the Desplaines River for that purpose, and the further

consideration that this suit was brought immediately after the opening of the canal, it is evident that the subject matter of that contract was the *natural water* of the Desplaines River, and *not* water that was then or that might any time thereafter *be added thereto from Lake Michigan.* Justice Pillsbury says in his opinion (p. 11 of abstract):

"We think it fairly deducible from the admitted facts, if not stated in so many words, that the hydraulic basin referred to as being at Norton's mills was a part of the original construction of the canal and that before the deepening of the summit level the surplus or waste water from that level was turned into the Desplaines River in the same manner it has been since,

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although in much less quantities."

There is no warrant for this deduction. There is nothing in the admitted facts that directly or indirectly concedes that a drop of water passed from the canal at Lockport into the Desplaines River until the canal and river formed a junction and were united in one stream. There was no *waste water* at Lockport. There could *not* have been from the fact that the summit level was supplied only in part by feeders, and the canal authorities were compelled to and did erect extensive pumping works for the purpose of assisting in supplying that
6246 level with water from the Chicago River at Bridgeport. There is no evidence, therefore, nor any fair inference, that the volume of the water in the river was at the time of the execution of this contract, or the commencement of the suit which this contract settled, increased by the water running in the canal to the slightest extent, except at the point where the canal and river were one; and there could be no inference further from the *true* facts in the case than that drawn by Justice Pillsbury when he says:

"With these facts within the knowledge of the parties and, as we must conclude, taken into consideration by them in adjusting the matters in dispute, it would seem that the trustees treated the right to the exclusive use of the water of the river, increased by their own work, so far as it could be necessary to appropriate it for the purposes of navigation, as a sufficient consideration for the relinquishment upon their part of any claim

to use or divert any portion of the water in the stream, from whatever source derived, not required for such purpose."

The *agreed* state of facts, as appearing in 5th Gilman, upon which the Haven suit was brought (and the Haven contract itself), shows as conclusively and clearly as anything can show that at the time of the execution of the Haven release all idea of making the deep cut *and supplying the canal with water from Lake Michigan had*
6247 *been abandoned*, and the canal authorities were compelled to look elsewhere for their supply of water; and even if a slight quantity of water did escape from the canal into the river at Lockport at this time, the quantity was inconsiderable, and was not taken into account either one way or the other in the execution and acceptance of this release. In fact, it is evident that the Havens never imagined for a moment that they were entitled to any water except that which flowed naturally in the Desplaines River, and the Canal Trustees certainly never imagined for a moment that they were releasing or abandoning their claim to water that might thereafter be added by them from Lake Michigan. So that from the condition of the thing which was the subject matter of this contract and the circumstances surrounding the parties at the time, it is evident that the *only thing* concerning which these parties contracted was the *natural water* of the Desplaines River; and while we doubt not this release can be successfully relied upon as a bar to the claim now made, it certainly would be a strange construction of the release to say that it applied to other and different water than the *natural water* of the Desplaines River or that it applied to waters which, *in the contemplation of the parties at that time, never could become a subject of controversy.*
6248 Again, the language of the release itself confirms us in the position we have taken. The release was executed to settle the suit brought for alleged damages "occasioned by diverting the water of said river," and in consideration of the money received the Havens "released and discharged the trustees from all action, rights of action, and all claims arising out of

any damages heretofore, now or hereafter to be sustained by them *by reason of the use of the waters of the*

Desplaines River for the purpose of supplying said canal in the same manner the same is now supplied at the feeder at Joliet. That is, they released damages on account of the diversion of the *water of the Desplaines River,* but in no manner can it be inferred that they set up any right or claim of right to the *waters of Lake Michigan.* And again, they grant the right to use and appropriate the water of the said Desplaines River at the feeders at Joliet below Guard Lock No. 1, for supplying the said canal for the purposes of navigation *in the same manner the water in said river in connection with other feeders is now used for supplying said canal.* And it is a part of the history of the canal, well known to all citizens at all familiar with its management, that from the opening of the canal in 1848 until the present time it has been one of objects of the canal authorities to supply water power at all points and under all circum-
6249 stances where it was practicable for them to do so; and every act of the Legislature providing for the government of the canal, from the year 1839 to the present time, has made it the duty of the Canal Commissioners or trustees to derive all possible revenue from this source. Again, by applying to this release the well established doctrine that *all grants are to be construed most strongly against the grantor,* a doctrine so thoroughly settled as to be elementary, and we find that under the Havens' release the Canal Commissioners would be entitled to use *all the natural waters of the Desplaines River, so far at least as those claiming under the Havens are concerned, for the purposes of navigation in the canal.* This right continues for all time to come; and if you limit the grant to the use of such waters

to the purposes of navigation alone, still applying the above rule, it could *only apply to the natural waters of the river. Nothing else being in contemplation of the party at the time, leaving, therefore, the Canal Commissioners at full liberty to withdraw from the Desplaines River for the purpose of supplying water power privileges all the water which they had added thereto from Lake Michigan or other sources, provided always that the natural waters of the river afforded them a sufficient supply for the purposes of navigation,* as it is, by the improvement of the state, appellee has been greatly

benefited and his water power largely increased. In
6250 what manner, therefore, can it be said that he has sustained damage? It seems to us clear that the effect given by Justice Pillsbury is unwarranted by the facts, and is in direct conflict with the rule that he himself lays down.

Again on page 14 of the abstract, Justice Pillsbury says:

"From the admitted facts, and from the circumstances surrounding the making of the improvement, or deep cut so-called, the conclusion is rendered certain that the said improvement was *not* made for the purpose of supplying the canal below Guard Lock No. 1 with water for canal purposes, but for the purpose *alone* of improving the drainage facilities of the City of Chicago by making the canal an outlet for its sewers by way of the Desplaines River. All the facts and circumstances negative the idea that it was a part of the plan of the city in making such deep cut, or of the State in allowing the city to do so, to create a water power on the Channahon level, *or to furnish water for canal purposes.*"

It is impossible to believe that the learned judge who wrote this opinion had had his attention called to the act

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of 1836 providing for the construction of the canal, for if he had he would have seen that it was originally contemplated that so far as possible the canal should be supplied from one end to the other with water from Lake Michigan. The original plan of the canal contemplated the use of that water and relied upon Lake Michigan
6251 as the principal source of supply. It is also very evident that the learned judge failed to read the act of 1865, under which the deep cut was constructed, for the title of that act would have disclosed to him his error. It is also very evident that the learned judge supposed that the counsel for the appellee had quoted in their brief in this court the whole of the preamble to the act of 1865, and that he accepted the conclusions to which counsel for appellee had arrived as to the object of this deep cut, without a careful examination of the act itself; for, if the act of 1836 and the title to the act of 1865, *the preamble thereto,* and the act itself, are considered together (and it is necessary to thus consider them in

order to arrive at the legislative intent), it is as clear as the noonday sun in an unclouded sky that the object of the Legislature in causing this work to be done was to supply the canal with water from Lake Michigan, and to supply it for the use of the canal for all legitimate purposes, such as navigation of the canal itself, and the furnishing when practicable of water power along the route of the canal. The State did this work, and not the City of Chicago. It is true that the City of Chicago acted as the agent of the State in so doing. The City of
6252 Chicago had an object to accomplish in which the State had no interest; but being an object of public importance, the State facilitated its accomplishment by allowing the city to advance the necessary funds to complete what the State had already planned,

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giving the city a lien, which lien was subsequently discharged by the State. The State never for one moment surrendered the control of the canal. The State never had in allowing this work to be done any other object in view than the deepening of the canal itself, and the act under which the work was done provided that the City of Chicago should be reimbursed, either from the revenues of the canal or from the treasury of the State. And if the learned judge was in possession of all these facts at the time of penning the quotation last above made, the conclusion arrived at is unaccountable, and must be a surprise to every one conversant with the facts, as well as to himself on further reflection.

VI.

We desire to suggest in closing that the Appellate Court had no jurisdiction to hear or determine this case.

Sec. 88 of the Practice Act, Sess. Laws 1879, p. 222, provides that "All cases relating to revenue, or in which the State is interested *as a party or otherwise*, shall be taken directly to the Supreme Court."

6253 In the case at bar the State is *directly* interested, not as a party, it is true, but in the result. If this judgment is collected the State would be both legally and morally bound to refund the money to the appellant. And then again, if the judgment of the Appellate Court

is affirmed, all revenue to the State from this source will be lost.

Respectfully submitted,
G. D. A. PARKS,
E. F. BULL,
For Appellant.

5260 Counsel for defendant read in evidence the report of the United States Chief Engineer, 1901, Part 5, statements in regard to the Snake river, from pages 3529 to 3542, as follows:

"DESCRIPTION:—The Snake river is a long and very crooked mountain stream flowing from upward of 900 miles down the western slope of the Rocky Mountains. It si extremely irregular in its direction of flow, width, depth, and slope, as well as in its banks and bed. Portions of it are inclosed in steep, rocky canyons where the great slope causes extreme velocities, portions of it include waterfalls and cascades of great beauty, but only in its lower portions are reaches found where navigation is practicable. It rises in the mountains in the southern part of Yellowstone Park, flows southwest through the southeastern part of Idaho until within about 60 miles of the Great Salt Lake of Utah, and then flows westward through southern Idaho. It then turns north and forms for 200 miles the boundary between the States of Idaho and Oregon. At Lewiston, Idaho, where it receives the waters of the Clearwater River, it again flows westward and finally empties into the Columbia River in the State of Washington near the town of Ainsworth. It is subject each summer to very high rises, varying from 18 to 26 feet, due to melting of snow in the mountains, and remains in a state of flood for several months,
5261 usually commencing early in May and lasting until September. There is also usually an autumn rise in November varying from 4 to 10 feet, due to rains in the areas drained. The low water discharge of the Snake at its mouth in the Columbia River is reported to be 26,000 cubic feet per second. (See Annual Report of the Chief of Engineers for 1889, p. 2583.)

The basin drained by the Snake River and its branches comprises the greater part of southern Idaho, large parts of eastern Oregon and southern Washington, and parts of Utah, Wyoming and Nevada. This area is esti-

mated to be 104,000 square miles. (See House Doc. No. 411, Fifty-fifth Congress, Second Session.)

Geologists state that the greater part of all this area has in former geological periods been subject to successive overflows of volcanic lava that now form the basaltic cliffs and mountains found in general over all this region. The river banks are, therefore, rocky and not easily washed, so that the Snake is not what may be properly termed a sediment-bearing stream. Considerable sand and gravel are carried, however, due mainly to the disintegration and wearing away of the rock and boulders forming its banks and bottom. The bottom also is mainly rock and boulders except where the sand and gravel have collected, due to natural causes, thus forming bars and shoals. In its upper portions it is
5262 said to be a typical mountain stream, having a rocky bed and swift currents with many picturesque falls and cascades. Above Huntington, Oreg., it does not appear that any special attempt at navigation has ever been made, probably because impracticable. Below Huntington, which is the western terminus of the Oregon Short Line Railroad, and the eastern terminus of the rail lines of the Oregon Railroad and Navigation Company, there is a reach of about 50 miles where an effort was once made at navigation many years ago, in the endeavor to afford water transportation from the Seven Devils mining regions to Huntington.

The Government spent a considerable sum of money from 1891 to 1896 in improving Snake river in the vicinity of Huntington. This was of no avail, however, as the only boat ever built for this section of the river, the Norma, gave up trying to run, after one trip, on account of the lack of paying business and the difficulties of navigation. Lower down from near Ballards Landing, just below Pine Creek, and as far down as the mouth of the Salmon river, the Snake flows in a deep, narrow canyon of basaltic rock for about 75 miles, where the slope of the river surface, sharp bends, and high irregular banks cause high velocities and cross currents and offer a serious obstruction to navigation that will always be formidable and dangerous, if not wholly unnavigable.
5263 From the mouth of the Salmon river down to the mouth of the Grande Ronde river the difficulties of navigation are somewhat less serious, but still probably render the

river impossible for practicable navigation. The mouth of the Grande Ronde river may be taken as the present head of practicable high water navigation in the Snake. The lower 139 miles, however, from the mouth at Ainsworth, Wash., up as far as Lewiston, is the only part that has been successfully navigated at lower stages.

In former days, before the construction of the railroads, this lower section of the river, in connection with the Columbia river, formed the only quick and safe means of communication with Portland, Oreg., and the Pacific coast, where were located the commercial centers. Light-draft river boats plied from Portland as early as 1858 up the Willamette and Columbia Rivers 45 miles to the obstruction at 'The Cascades,' where a portage railway 6 miles long, at the Washington shore, passed the freight and passengers around these obstructions. For about 45 miles more steamers were operated in what was then called the middle Columbia river, or up to the town of The Dalles, Oreg., and there a second portage road, 13 miles long, on the Oregon shore, enabled freight and passengers to pass the obstruction between The Dalles and Celilo, Oreg., and be transferred to steamers on the 'upper river,' above Celilo. These latter steamers at most favorable stages, and usually for more than half of each year, could ascend
5264 from Celilo up the Columbia to the mouth of the Snake, and up the Snake to Lewiston, which latter place thus became at an early date a center of distribution for a large outlying fertile region. The opening of the locks at 'The Cascades' in 1896, by the Government enabled steamboats to pass around one of the worst obstructions in the Columbia river, leaving the obstructions in the 12 miles between The Dalles and Celilo the only impassable ones to be overcome artificially in reaching Lewiston by water from Portland.

The completion of the Portland-Spokane line of the Oregon Railroad and Navigation Company's Railroad, in 1887, along and adjacent to the Columbia and Snake rivers as far as Riparia, Wash., robbed those two waterways of much of their old-time importance, so that all river navigation and portages on the Columbia above The Dalles and on the Snake were practically abandoned in 1888, except on the 73 miles of the Snake between Riparia, Wash., and Lewiston, Idaho. Between these

two points regular navigation has been maintained by the steamers of the Oregon Railroad and Navigation Company up to the present time, and occasional trips are also made by boats belonging to the Northern Pacific Railway Company and others. Occasional trips on the upper Snake have been made as far as the Grande Ronde river, about 25 miles above Lewiston, when the
5265 stage of water was favorable, but these trips are now so few and unimportant that the condition already existing, especially at boating stages, is believed to be sufficient for all the present needs of commerce. The proposed improvement by the Government of the Columbia river between The Dalles and Celilo will, if undertaken and finished, likely revive some of the old-time importance of the Snake river, especially from Lewiston down to its mouth, providing, as it would, an all-water transportation route during at least a portion of each year from Lewiston to Portland.

A survey of the lower 66 miles of the Snake river from Riparia down to the mouth, made in 1899 under direction of Capt. Harry Taylor, Corps of Engineers (report of survey printed in House Doc. No. 411, Fifty-fifth Congress, second session), renders a further survey of this portion unnecessary at this time, so that the portion from Riparia to Lewiston being the only portion now regularly used by vessels, the subject of this survey and report, is the only remaining part believed to be worthy of consideration at the present time in connection with the improvement of the river for navigation.

In the portion from Lewiston to Riparia (73.5 miles), recently surveyed, the average width is approximately, 750 feet, the discharge 22,000 feet per second, the total fall 196.6 feet, and the slope an average of 2.67 feet per mile.

5266 The low-water depth varies from 2½ feet to 25 feet, with an average channel depth of about 8 feet, and the velocity from 1.3 to 8.8 miles per hour. The banks are about 1,500 feet high and usually slope to the water's edge. In a few places, however, there are found narrow and fertile 'bottoms,' limited in area, usually lying at the mouths of small creeks. These 'bottoms' are the only cultivated lands immediately adjacent to the river, but these when irrigated are very fertile and yield luxuri-

antly a fine quality of fruit, berries, etc., considerable quantities of which are shipped out annually.

The river banks slope back to a height of many hundreds of feet, and the bunch grass found thereon offers a sparse but fairly good grazing for sheep and cattle. On high plateaus, some miles back from the river, are the richly productive wheat fields of eastern Washington and Oregon. Much of the wheat, now amounting to many millions of bushels annually, raised in the Camas, and Clearwater basins, Palouse and Big Bend countries, and the Wallawalla and Wallowa regions now passes down the Snake and Columbia River Valleys by rail. For a further description of the Snake river, including description of the rapids and bars and the work done in past years, attention is respectfully invited to Annual Reports of Chief of Engineers for 1877, page 1037; for 1889, page 2583, and for 1891, page 3218.

5267 PREVIOUS IMPROVEMENT.—The Upper Columbia and Snake rivers having formed one of the most important highways of travel in the region in early days before the railroads were completed, Congress, as early as 1872 made appropriations for the improvement of the Columbia, and in 1876 the Snake was added to the plan of improvement. From that time up to the present a total of $288,500 has been appropriated for both rivers, of which, as near as can be learned from the records, $117,850.57 have been applied to the Snake river from Lewiston down to its mouth, mainly below Riparia. The original project was to secure a depth of 4½ feet at low water from the mouth up to Lewiston. The greater part of this improvement was made below Riparia, as the dangers and difficulties met with by steamboats were greatest there. The method of improvement consisted mainly in blasting out obstructing boulders, removing dangerous ledges, scraping sand and gravel bars, and the construction of dikes to concentrate the river flow in selected channels. This work on the lower Snake below Riparia was stopped in 1888, as the steamboats had abandoned that section upon completion of the railways paralleling it, and the expenditures since then being small have all been devoted to improving the portion in actual use between Riparia and Lewiston.

In 1892 $20,000 and in 1894 $25,000 were, as before re-
5268 ferred to, appropriated for the improvement of the

Snake and Huntington bridge down to the Seven Devils mining district. Considerable work was done in freeing the river from obstructions in this locality. Considerable plant was collected, including drill scows, tools, etc., and the work of removing ledge rock and boulders was carried on for several seasons. Only one steamer, the Norma, was ever built for navigating this section of river, and she made but one trip, and then the owners abandoned the idea of running. In 1896 all the Government plant in this portion of the river was sold and the river improvement abandoned.

Before the improvement of the Lower Snake was commenced there were many shoal places where there was not over 2 feet depth at low water. At many rapids the channel besides being shoal, was rocky and thickly studded with outstanding boulders, and was very crooked and intricate. The current was very swift at places, and the early attempts at navigation were accordingly attended with frequent delays, much risk, and occasional loss. The effect of the improvement has been to remove ledge rocks from many places below Riparia, partially straightening the channel, and freeing the river of many obstructing points. Many boulders have been blasted, and sand and gravel bars scraped, both above and below
5269 Riparia. At several places considerable benefit has been obtained by the construction of dikes, closing undesirable channels and directing the river flow into selected places to occasion scour and increase the depths.

Above Riparia the present condition meets fairly well the present demands of navigation at all stages except at and near extreme low water. Extreme low water is seldom reached and only occasionally are boats prevented from using the river for this reason, and then for only short periods. Much delay is experienced near low-water stages, however, by having to 'line' the boats over bars and by having to run with only partial loads.

Previous Examinations and Surveys.—An examination of the Upper Columbia and Snake rivers was made in 1866 by Lieut. (now Lieut. Col.) W. H. Hener, Corps of Engineers, and an estimate of cost of improvement made (see Annual Report, Chief of Engineers, 1866, Part IV, p. 330), amounting to $166,686, with $6,000 annually for dredging. In 1877 a further examination, with estimate of cost of improvement, amounting to $132,000,

was made by Maj. (now Brig. Gen.) John M. Wilson, Corps of Engineers. No continuous survey of the Columbia and Snake rivers has ever been made up to the present day. The plans of improvement proposed in these prospects were for the benefit of the special places found most troublesome by steamboats, and only special, limited surveys of the localities to be improved were made.

5270 In 1897 a survey from Riparia to the mouth was made under direction of Capt. Harry Taylor, Corps of Engineers, and a project and estimate of cost submitted under date of January 27, 1898 (House Doc. No. 411, Fifty-fifth Congress, second session). The project of improvement as stated in this report was for securing at low water at least navigable depth of 5 feet everywhere from Riparia down to the mouth, a distance of 66 miles. The cost was estimated at $165,000, with $3,000 every two years for maintenance.

PRESENT SURVEY.—The present survey was commenced July 28, 1900, and the field work was completed September 24, 1900. The party, numbering 15, was under charge of Mr. Frank Gilham and was composed of a transit party and a level party, with the necessary boatmen, cook, and laborers. The party, using four batteaux, commenced at Lewiston and drifted downstream from time to time with the current when it was necessary to change camp sites. A line of levels, checked by a duplicate set of readings, was carried through the entire distance, the zero being the level of mean low water at the sea, assuming as correct the corresponding elevation of law water at Lewiston (708.6) as observed by the Oregon Railroad and Navigation Company.

Low-water level was obtained from the zero of the gauge at Lewiston on the Oregon Railroad and Navigation Company's waterhouse and from that of the gauge on the central pier of the drawspan of the Riparia Railway bridge. These gauges were read daily at noon during the survey, and were found to indicate fairly well the corresponding stages of water at the two places. These gauges were put in place by the railway companies and have been read for many years by them. The zeros give the best information available of the level of extreme low water.

5271

5272 Present condition and improvement proposed. The description of the shoals, rapids, and other obstructed places between Riparia and Lewiston, where trouble in navigation is experienced at the present time, is as follows:

LIST OF RAPIDS, SHOALS, AND PROMINENT POINTS IN SNAKE RIVER FROM LEWISTON, IDAHO, TO RIPARIA, WASH.

Locality	Distance from Lewiston Miles	Elevation of low-water surface Feet.	Fall of water Feet.	Rate of fall per mile Feet.	Length of rapid Miles.	Depth of low water Feet.	Velocity of current per hour Miles.	
Beginning of survey..... (above Lewiston)	0.25	709.6						
Lewiston	.00	709.59						
Lewiston rapid:								
Head	.01	709.4	4.1	7.19	0.57	7.	7.93	Gravel 6 inches in diameter and smaller.
Foot	.58	705.3						
Clearwater River.....	.60							
Riffle No. 1:								
Head	1.71	701.7	1.5	7.50	.20	10	7.	Gravel 6 inches in diameter and smaller.
Foot	1.91	700.2						
Dear March:								
Head	3.20	699.4	7.3	9.30	.76	4	6	
Foot	3.96	692.1						
Dry Gulch Shoal.....	4.45	689	.7	8.80	.08	2.5	5.80	
Dry Gulch Rapid:								
Head	4.66	688	3.4	34.	.10	8	8.80	Bowlders and gravel, principally bowlders.
Foot	4.76	684.6						
Alpowa	9.40							
Alpowa Rapid:								
Head	9.42	676.8	1.1	5.70	.19	7		Sand and gravel.
Foot	9.61	675.7						
Steptow Rapid:								
Head	11.06	673.4	5.3	9.64	.55	5.5	7.10	Gravel 6 inches in diameter and smaller.
Foot	11.61	668.1						
Little Pine Tree Shoal...	13.01	666.	1.7	4.50	.38	2	4	⅔ gravel 6 inches in diameter and smaller; ½ bowlders 6 to 24 inches.
Little Pine Tree Rapid:								
Head	13.12	665.3	6.9	24.64	.28	8	7.50	Bowlders and gravel, principally bowlders.
Foot	13.40	658.4						

Present condition and improvement proposed. The description of the shoals, rapids, and other obstructed places between Riparia and Lewiston, where trouble in navigation is experienced at the present time, is as follows:

LIST OF RAPIDS, SHOALS, AND PROMINENT POINTS IN SNAKE RIVER FROM LEWISTON, IDAHO, TO RIPARIA, WASH. (Continued.)

Locality	Distance from Lewiston Miles	Elevation of low-water surface Feet.	Fall of water Feet.	Rate of fall per mile Feet.	Length of rapid Miles.	Depth of low water Feet.	Velocity of current per hour Miles.	
Riffle No. 2.....	13.03	655	.3	1.50	.20	4.5		Gravel 6 inches in diameter and smaller.
Tramway Rapid:								
Head	16.06	654.1	.8	8	.10	13		Bowlders and gravel.
Foot	16.16	653.3						
Bucket Tramway	17.36							
Rapid No. 8:								
Head	19.73	650.2	5.2	4.45	1.17	4	5.20	Gravel 6 inches in diameter and smaller.
Foot	20.90	645						
Rapid No. 9:								
Head	23.73	639.2	2.4	14.12	.17	5	7	
Foot	23.90	636.8						
Granite Point Rapid:								
Head	25.13	635	4.9	11.95	.41	5	5.35	Bowlders 24 inches in diameter and larger.
Foot	25.54	630.1						
Granite Point	26.51							
Tramway	28.							
Wawawa	29.30							
Ofields Bar:								
Head	31.56	627.2	6.2	12.40	.50	2	6.30	Gravel 6 inches in diameter and smaller.
Foot	32.06	621						
Log Cabin Rapid:								
Head	32.81	620	3.3	7.33	.45	3	5.10	
Foot	32.26	616.7						
Almota Dead March:								
Head	33.94	616.4	5.	5. / 8.33	.92	3.6	5 / 7	
Foot	34.86	611.4						
Almota	36.30							
Ilia Bar	37.82	606.5	.6	2.	.30	4		Gravel 6 inches in diameter and smaller.

5273 Present condition and improvement proposed. The description of the shoals, rapids, and other obstructed places between Riparia and Lewiston, where trouble in navigation is experienced at the present time, is as follows:

LIST OF RAPIDS, SHOALS, AND PROMINENT POINTS IN SNAKE RIVER FROM LEWISTON, IDAHO, TO RIPARIA, WASH. (Continued.)

Locality	Distance from Lewiston Miles	Elevation of low-water surface Feet.	Fall of water Feet.	Rate of fall per mile Feet.	Length of rapid Miles.	Depth of low water Feet.	Velocity of current per hour Miles.	
Ilia Rapid:								
Head	38.13	606.2	7.4	12.53	.59	6	7.60	Solid rock, bowlders and gravel.
Foot	38.72	598.8						
Ilia	38.57							
Lower Ilia Rapid:								
Head	40.21	592.8	1.4	11.67	.12	5		Gravel 6 inches in diameter and smaller.
Foot	40.33	591.4						
Wades Rapid:								
Head	42.61	589.4	3	9.10	.33	6	7.	
Foot first pitch	42.94	586.4						
Head second pitch	42.94	586.4	1.5	5.77	.26	7		
Foot second pitch	43.20	584.9						
Rapid No. 16:								
Head	46.01	581.4	2.3	8.52	.27	5	4.50	Bowlders and gravel; principally gravel.
Foot	46.28	579.1						
Upper Penewawa Rapid:								
Head	47.93	577.6	3.3	9.17	.36	5	7	Bowlders and gravel, 6 to 24 inches diameter.
Foot	48.29	574.3						
Lower Penewawa Rapid:								
Head	48.72	572.8	1.5	7.50	.20	6		Gravel 6 inches in diameter and smaller.
Foot	48.92	571.3						
Penewawa	49.56							
Willow Rapid:								
Head	50.74	568.9	2.5	10.	.25	6.5	8	Bowlders and gravel.
Foot first pitch	50.99	566.4						
Head second pitch	50.99	566.4	2.8	6.83	.41	8.	7.40	
Foot second pitch	51.40	563.6						
Central Ferry	56.77							
Dead Man Rapid:								
Head	56.86	577.6	4.4	11.28	.39	2.8	6.10	Gravel 6 inches in diameter and smaller.
Foot	57.25	553.2						

Present condition and improvement proposed. The description of the shoals, rapids, and other obstructed places between Riparia and Lewiston, where trouble in navigation is experienced at the present time, is as follows:

LIST OF RAPIDS, SHOALS, AND PROMINENT POINTS IN SNAKE RIVER FROM LEWISTON, IDAHO, TO RIPARIA, WASH. (Continued.)

Locality	Distance from Lewiston Miles	Elevation of low-water surface Feet.	Fall of water Feet.	Rate of fall per mile Feet.	Length of rapid Miles.	Depth of low water Feet.	Velocity of current per hour Miles.	
Diamond Crossing:								
Head	58.32	552.2	5.7	4.95	1.15	3	5.40	Gravel 6 inches in diameter and smaller.
Foot	59.47	546.5						
New York Bar Rapid:								
Head	59.66	545.5	3.8	8.64	.44	6.5	7	
Foot	60.40	541.7						
Upper Goose Island Rapid:								
Head	63.76	539.5	4.3	9.15	.47	3.5	7	
Foot	64.23	535.2						
Goose Island Bar	64.60	535.2						
Goose Island Rapid:								
Head	64.67	535.2	3.5	29.17	.12	6.	8.80	
Foot, first pitch	64.79	531.7						
Head, second pitch	64.79	531.7	1.8	7.50	.24	7.		
Foot, second pitch	65.03	529.9						
Little Goose Island Rapid:								
Head	67.75	528.3	3.6	10.28	.35	3.	5.30	2/3 gravel 6 inches in diameter and smaller, 1/3 bowlder gravel 6 inches to 24 inches.
Foot	68.10	524.7						
Little Goose Island Bar:								
Head	68.50	523.1	1.9	3.73	.51	3	5	
Foot	69.01	521.2						
Rapid No. 24:								
Head	69.01	521.2	3	6.38	.47	6.5	6.50	Gravel 6 inches in diameter and smaller.
Foot	69.48	518.2						
Upper Riparia Rapid:								
Head	71.03	516.9	5	10.35	.29	7	6.10	Bowlders and gravel; principally gravel.
Foot	71.32	513.9						
Riparia Bridge	72.85	513.3						
Riparia (end of survey)	73.25	513.						

Length of river surveyed, 73.5 miles.

NOTE.—Elevations refer to mean low tide at Astoria, Oreg., as given by the Oregon Railroad and Navigation Company's levels. Water surface refers to extreme low water.

5274 DETAILED DESCRIPTION OF SHOAL RAPIDS AND PROMINENT POINTS IN SNAKE RIVER FROM LEWISTON, IDAHO, TO RIPARIA, WASH.

Beginning of the survey is 0.25 miles above Oregon Railroad and Navigation Company's warehouse at Lewiston, Idaho.

LEWISTON, a city of about 5,000 inhabitants, is situated at the confluence of the Snake and Clearwater rivers, on the right bank of the former and left bank of latter.

1. LEWISTON RAPIDS:—This rapids is opposite Lewiston. It has a length of 0.57 of a mile and a fall of 4.1 feet, or at the rate of 7.19 feet per mile. The river just above the rapid has a low-water width of about 900 feet, narrowing down, with an almost square-shouldered gravel bar on the right, to a width of 230 feet. The gravel bar has a height of about 5 feet above low water, and width of about 900 feet. On the left bank of the river is a gravel bluff about 40 feet high. This sudden narrowing of the river, together with a shoal place extending across the river just above the head of the rapids, causes a current of 7.93 miles per hour. The least depth of water is 7 feet. No improvement is deemed necessary at this place, as the only difficulty experienced now is caused by the strong current.

The Clearwater river empties into the Snake from the
5275 northeast, 0.60 miles below Lewiston. It has a low-water width of about 350 feet and a depth of about 7 feet. It is the only stream of any importance emptying into the Snake river between Lewiston and Riparia.

2. RIFFLE No. 1 (1.71 miles below Lewiston).—It is 0.20 of a mile in length and has a fall of 15 feet, or at the rate of 7.5 feet per mile, and at least depth of water of 10 feet. No special impediment to navigation was found here and no improvement is necessary.

3. DEAD MARCH (3.2 miles below Lewiston).—It has a length of 0.76 of a mile and a fall of 7.3 feet, or at the rate of 9.3 feet per mile. The least depth of water found was 4 feet. The river, which above the rapid is about 900 feet wide, is here divided by an island, which throws the main body of water into a channel on the south side about 450 feet wide. This sudden narrowing produces a current of 6 miles per hour. The other channel to the

north of the island is about 150 feet wide, and 1.2 feet deep and is blocked by shoals and boulders and not available for navigation at low stages. No special difficulty is experienced here now, but to secure a 5-foot channel it will be necessary to dredge near the lower end.

4. Dry Gulch Shoal.—This shoal is just above Dry Gulch Rapid and 4.45 miles below Lewiston. The river at this point makes a turn to the left and a tongue-shaped
5276 point reaches out from the left bank terminating in a shoal which extends across the river. The deepest water found on this shoal was 2.5 feet. It is proposed to dredge a channel 5 feet deep and 120 feet wide through this shoal.

5. Dry Gulch Rapid (4.66 miles below Lewiston).—It has a length of 0.10 of a mile and a fall of 3.4 feet, giving a rate of fall of 34 feet per mile, and a current of 8.8 miles per hour. A depth of 8 feet was found at the shoalest place. The swift water is caused by insufficient cross section, the river narrowing from 800 feet to 230 feet between a low gravel bar on the right bank, about 500 feet wide and 2 feet deep above low water, and a low rocky bluff on the left. The only impediment to navigation is the strong current. No improvement is proposed.

Alpowa (9.4 miles below Lewiston).—A small settlement on the left bank of the river at the mouth of Alpowa Creek. A current ferry is maintained at this point.

6. Alpowa Rapid (9.42 miles below Lewiston).—It has a length of 0.19 of a mile and a fall of 1.1 feet giving a rate of fall of 5.79 feet per mile. Seven feet was the shoalest water found here. No special obstruction to navigation exists.

7. Steptow Rapid (11.06 miles below Lewiston).—It has a length of 0.55 of a mile and a total fall of 5.3 feet, or a rate of fall of 9.64 feet per mile. The difficulty here
5277 is the strong current, 7.1 miles per hour, and the crooked, narrow channel. Five and five-tenths feet depth at low water was found at the shoalest point. The river at the head of the rapid has a width of about 750 feet between high banks, and is divided by a low island 500 feet wide and 1.5 feet above low water. This throws the main body of water into a channel on the right about 250 feet wide, the other channel on the left being only about 120 feet wide and 1 foot deep. This reduction of the sec-

tion, taken in connection with a shoal just above the rapid, has a damming effect, the channel acting as a spillway. The improvement proposed at this place includes the deepening and straightening of the channel by dredging.

8. Little Pine Tree Shoal (13.01 miles below Lewiston).—It is probably caused by the river attaining the extreme width of 1,000 between low-water shore lines with a very uniform cross section. The depth of water varies from 2 to 7 feet, and falls at the rate of 4.5 feet per mile with a current of about 4 miles per hour. Dredging is necessary at this place.

9. Little Pine Tree Rapid (13.12 miles below Lewiston).—This rapid has a length of 0.28 of a mile and a fall of 6.9 feet, or at the rate of fall of 24.64 feet per mile. The only special impediment to navigation is the strong current, which flows at the rate of 7.5 miles per hour.
5278 The least depth of water found here was 8 feet. The rapid is caused by a low gravel bar which extends out from the right bank about 400 feet. This has the effect of diminishing the width of the river from 900 feet just above the bar to 350 feet opposite it. No improvement is proposed at this place.

10. Riffle No. 2 (15.03 miles below Lewiston).—No difficulty is now experienced in navigating the river at this point. The rate of fall per mile is but 1.5 feet, with a slow current; 4.5 feet was the least depth found. No improvement is thought necessary at the present time.

11. Tramway Rapid (16.06 miles below Lewiston).—This place offers now no special difficulties to navigation. The rapid has a total fall of .8 feet, or at the rate of 8 feet per mile. It is but 0.1 of a mile in length. The least depth found was 13 feet.

Bucket Tramway (17.36 miles below Lewiston).—Consists of a system of buckets hung on a wire rope for bringing wheat down from the farming land, about 1,500 feet above the river, to the steamer landing on the south bank of the river.

12. Rapid No. 8 (19.73 miles below Lewiston).—It is 1.17 miles in length and has a total fall of 5.2 feet, or at the rate of 4.45 feet per mile, with a current of 5.2 miles per hour. It has never been considered a difficult place to navigate. Four feet was the least depth found. Sev-
5279 eral boulders should, however, be removed at this place.

13. Rapid No. 9 (23.73 miles below Lewiston).—It has a length of 0.17 of a mile and a fall of 2.4 feet, or at the rate of 14.12 feet per mile. It has a current of 7 miles per hour. The only impediment offered to navigation is the strong current, there being 5 feet of water at the shoalest places.

14. Granite Pine Rapid (25.13 miles below Lewiston).—It is 0.41 of a mile in length and has a fall of 4.9 feet, or at the rate of 11.95 feet per mile. It has a current of 5.35 miles per hour. The only important obstruction to navigation at this point consists of two rocks about 1.5 feet below low water. These rocks aggregate about 50 cubic yards. The rapid is caused by a sunken ledge of rocks extending across the river which has caused a bar about 600 feet wide to form on the right bank. The effect of this is to reduce the distance between the water lines from 900 feet above the rapid to 400 feet at its narrowest place. There are many sunken rocks and boulders in this stretch, but a fair channel is open near the left bank. The soundings gave 5 feet of water at the shoalest place. The two boulders above mentioned should be removed.

Granite Point (26.51 miles below Lewiston).—A granite ledge cropping out about 150 feet below the level of the water at the north side extends across the river,
5280 showing on the opposite bank. The granite in this quarry is of an excellent quality. It has been worked for about twenty years. Among other structures built of this stone might be mentioned the piers for the bridge across Snake River at Ainsworth, and the new Custom House at Portland, Oreg. The water at this place has a depth of 45 feet, being the deepest water between Lewiston and Riparia.

Tramway (28 miles from Lewiston).—A tramway on the left bank of the river which is operated by the gravity system, the loaded cars coming down pulling the empty cars up. It is for the purpose of bringing wheat down to the river from the farming lands on the high plateaus.

Wawawa is a small settlement on the right bank of the river, 29.3 miles below Lewiston. A current ferry is operated at this point, it being one of the crossings of the Pomeroy-Colfax wagon road.

15. Ofields Bar (31.56 miles below Lewiston).—The

river at this place has a low-water width of 800 feet, and a high-water width of about 2,500 feet. It has a fall of 6.2 feet in 0.5 of a mile, or at the rate of 12.4 feet per mile, and has a current of 6.3 miles per hour. About 100 feet out from the right bank there is a long, narrow island exposed for a width of about 20 feet at low water, which parallels the shore for about 1,000 feet. This terminates at the lower end in a bar which ex-
5281 tends diagonally across the river, connecting with a small island near the right shore about 1,200 feet below. The water on this bar has a low-water depth of 1.5 feet. Between the upper end of this narrow island and the left shore of the river the water has a depth of 4 feet, and a point about opposite the lower end of the island and about midway between it and the left shore the water has a depth of 5.5 feet extending up and down stream for about 400 feet. The method employed in navigating this part of the river at low water has been to keep near the right shore, passing through the chute-like channel between the narrow island and the right shore and following the right bank for about 400 feet above the head of the island (see map). This is necessary on account of shoal water extending above the head of the island. The current is very strong in this narrow passage, necessitating the use of a line on up-stream boats. This narrow channel has a depth of 2 feet at its shoalest place, but owing to its trough-like shape the action of the wheel prevents up-stream boats from getting full benefit of the water. It is proposed to improve this place by cutting through the bar below the island, thus allowing boats to pass into this deep water opposite its lower end. Between this point and the deep water above the shoalest water found was 4 feet.

16. Log Cabin Rapid (32.81 miles below Lewiston).—It has a length of a mile and a fall of 3.3 feet, or at the
5282 rate of 7.33 feet per mile, and has a current of 5.10 miles per hour. By following a tortuous channel a depth of 3 feet was found. Just above the shoal the river, which has a width of about 700 feet, is divided by a low island about 300 feet wide and 1,500 feet long. Near the right shore the water passing to the right of this island has a width of about 250 feet and a depth of about 1.5 feet. This island terminates at its lower end in a shoal which

extends across the river, giving a depth of 3 feet near the left bank. A dike, now in bad repair, has been built by the United States in previous years to prevent the water from passing behind this island and by throwing all the water into the main channel to increase its depth. The method of navigation employed with up-stream boats has been to skirt the left shore until about opposite the lower end of the island, then turn abruptly toward the deeper water about midstream. A crib filled with rock has been erected near the left bank at the point where the turn is made to prevent boats from drifting upon the rocky shore. As the channel is so near the shore, this has always been a very difficult place to navigate, especially during high winds. The proposed improvement contemplated repairing the dike mentioned and cutting a straight channel 5 feet deep through the shoal.

17. ALTOMA DEAD MARCH (33.94 miles below Lewis-
5283 ton).—It has a length of 0.92 of a mile, with a total fall of 5 feet. It has two pitches, one of which falls at the rate of 5 feet to the mile with a current of about 5 miles per hour, the other at the rate of 8.33 feet per mile with a current of 7 miles per hour. This last pitch is about 0.1 of a mile in length. The soundings showed a 3.6-foot channel at low water. The river has a low-water width of about 600 feet and a high-water width of about 1,500 feet. No difficulty is generally experienced in navigating this portion of the river, and no improvement is proposed at present.

ALMOTA (36.30 miles below Lewiston).—A settlement on the right bank of Snake River and is the principal settlement between Lewiston and Riparia. The building of railroads on the table-lands back from the river on each side has robbed it of much of its importance, but large shipments of wheat are still made from this point. A current ferry is operated here, it being on the Pomeroy-Colfax wagon road.

18. ILIA BAR (37.62 miles below Lewiston).—The river at this point has a low-water width of about 1,000 feet and a high-water width of about 1,400 feet. Opposite the lower end of the shoal the river is divided by a large island, the main body of water flowing to the left and a stream about 250 feet wide and 1 foot deep flowing to the right. The shoal connects the upper end of the

island with the left shore. This is not considered a difficult place. A 4-foot channel was found. No improve-
5284 ment is proposed at present.

19. Ilia Rapid (38.13 miles below Lewiston).—It has a length of 0.59 of a mile and a fall of 7.4 feet, or at the rate of 12.53 feet per mile, with a current of 7.6 miles per hour. The least depth of water found was 6 feet. At about the head of the rapid the river is divided by a large island which crowds the main body of water into a channel on the left about 330 feet wide. The channel, which keeps to the right of the island, is about 250 feet wide and 1 foot in depth. The only impediment to navigation at this point is the strong current. No improvement excepting the removal of one rocky boulder is considered necessary.

Ilia (38.57 miles below Lewiston).—A small settlement on the left bank of the river, and is a wheat-shipping point of considerable importance.

20. Lower Ilia Rapid (40.21 miles below Lewiston).—It has a length of 0.12 miles and a fall of 1.4 feet, or at the rate of 11.67 feet per mile. There is no impediment to navigation at this place. The shoalest water found was 5 feet.

21. Wades Rapids (42.61 miles below Lewiston).—It has a total length of 0.59 of a mile and a total fall of 4.5 feet. The upper half falls at the rate of 5.77 miles and has a current of 7 miles per hour. The lower half
5285 falls at the rate of 5.77 miles per hour. The river, which is about 900 feet wide just above the rapid, is divided by Atwood Island, which throws the main body of water into a channel on the right side about 300 feet wide. The channel on the left of the island is about 100 feet wide and 1.5 feet deep. The least water found on this rapid was 6 feet. The only impediment to navigation is the strong current. No improvement is proposed.

22. Rapid No. 16 (46.01 miles below Lewiston).—It has a length of 0.27 of a mile and a fall of 2.3 feet, or at the rate of 8.22 feet per mile, with a current of 4.50 miles per hour. The river has a width of about 600 feet. The least depth found was 5 feet. No obstruction to navigation was found here.

23. Upper Pennewawa Rapid (47.93 miles below Lewiston).—It has a length of 0.36 of a mile and a fall of

3.3 feet, or at the rate of 9.17 miles per hour. It has a current of 7 miles per hour. The shoalest water found was 5 feet. The rapid is caused by an insufficient cross section, the river narrowing down to about 400 feet between low water lines. No improvement is now needed at this place.

24. Lower Penewawa Rapid (48.72 miles below Lewiston).—It has a fall of 1.5 feet in a distance of 0.20 of a mile, or at the rate of 7.5 feet per mile. The river has a width of about 600 feet and a depth of 6 feet.
5286 No improvement is necessary except removing two rocks, aggregating about 40 cubic yards.

Penewawa (49.56 miles below Lewiston).—A small settlement on the right bank of the river. It has a store, post office and hotel. A current ferry is operated here.

25. Willow Rapid (50.74 miles below Lewiston).—It has a total length of 0.66 of a mile divided into 2 pitches. The first has a fall of 2.5 feet, or at the rate of 10 feet per mile, and a current of 8 miles per hour; the second has a fall of 2.8 feet, or at the rate of 6.83 feet per mile, and a current of 7.4 miles per hour. The least depth of water found was 6.5 feet. The river just above the rapid has a low-water width of about 800 feet. It is divided by an island which contracts the main channel to a width of about 300 feet. The main body of water flows to the right of the island. The channel to the left is about 30 feet wide and 1 foot deep. The only impediment to navigation at this place is the strong current, which, setting toward the head of the island on the left, sometimes necessitates the use of a line. No improvement is proposed.

Central Ferry (56.57 miles below Lewiston) is a current ferry at the crossing of wagon road.

26. Dead Man Rapid and Bar (56.86 miles below Lewiston).—It has a length of 0.36 of a mile and a fall of
5287 4.4 feet, or at the rate of 11.28 feet per mile. It has a current of 6.10 miles per hour. The soundings gave a depth of 2.8 feet at the shoalest place. The river at this point is divided by Dead Man Island, the main channel, about 600 feet wide, going to the right. The channel passing to the left is about 200 feet wide and 1.3 feet deep. Dredging to 5 feet depth will be necessary.

27. Diamond Crossing (58.32 miles below Lewiston).

—It is a long, diagonal bar extending from New York Bar on the left to the right bank. Three feet was the least depth found at this shoal. To secure a 5-foot channel it will be necessary to dredge.

28. New York Bar Rapid (59.96 miles below Lewiston).—It has a length of 0.44 of a mile, and a fall of 3.80 feet, or at the rate of 8.64 feet per mile. It has a current of 7 miles per hour. The least depth found here was 6.5 feet. The river above the rapid has a width of about 1,200 feet. It is divided by a low island about 800 feet wide, the main body of water flowing to the right through a channel about 400 feet wide. The channel to the left is about 50 feet wide. The rapid is the result of this narrowing of the waterway. The strong current is the only impediment to navigation. No improvement is proposed.

29. Upper Goose Island Rapid (63.76 miles below Lewiston).—It has a length of 0.47 of a mile and a fall of 4.3 feet, or at the rate of 9.15 feet per mile, with a
5288 current of 7 miles per hour. Three and five-tenths feet was the least depth found. Just above the rapid the river has a width of 1,300 feet and is here divided by the upper island of the group known as Goose Island, which extends down the river for about 4 miles. These islands are three in number, the most elevated being about 16 feet above low water, the river at this point being 2,000 feet wide. The main channel keeps near the right bank and is about 400 feet in width. The channel on the left of this upper island is about 475 feet wide and has a depth of 5 feet. This is again divided. One branch, bearing to the right, passes between the upper island the second of the group. This channel has a width of about 200 feet and a depth of 1 foot. The channel has a width of about 200 feet and a depth of 1 foot. The channel which keeps to the left has a width of about 250 feet and a depth of 1.5 feet. It has a very strong current and is blocked with many bowlders. It is not considered necessary, however, to make any improvement at this place at this time.

30. Goose Island Bar (64.60 miles below Lewiston).—This bar has formed in the pool between upper Goose Island Rapid and Goose Island Rapid proper and near the head of the latter. The water on the bar has a depth

of 2 feet. The river here has a width of about 1,800 feet and is divided by the lower island of the Goose Island group, the upper end of this island being about opposite the bar. A shallow channel flows between the second of the group and this lower island about 400 feet wide
5289 and 1 foot deep. Two dikes have been constructed across this channel for the purpose of contracting the flow of water over the bar. The first built was placed across the channel at a point about 300 feet back of the shoulders of the two islands. This dike is in bad repair. The last constructed is on a line between the shoulders of the island, but lacks about 500 feet of connecting them. The improvement proposed for this place is to complete the last-mentioned dike and cut a channel 60 feet wide and 5 feet deep through the bar.

31. Goose Island Rapid (64.67 miles from Lewiston). —It has a total length of 0.38 of a mile and a total fall of 5.3 feet at its steepest place. It falls at the rate of 29.17 feet per mile, with a current of 8.8 miles per hour. The shoalest water found over this rapid was 6 feet. The river is here divided by the lower island of the Goose Island groups, the main body of water flowing through a channel on the right about 200 feet wide. The river at this point has a high-water width of about 1,800 feet, there being a low bar on the right about 1,100 feet wide. No improvement is contemplated at this rapid.

32. Little Goose Island Rapid (67.75 miles from Lewiston).—It has a length of 0.35 of a mile and a fall
5290 of 3.5 feet, or at the rate of 10.28 feet per mile, and a current of 5.3 miles per hour. The shoalest water found was 3 feet. The river at this point has a width of about 1,500 feet and is divided by Little Goose Island, the main body of water flowing to the right in a channel about 550 feet wide. The branch flowing to the left is about 100 feet wide and 1.5 feet deep. Near the right bank of the main channel there are many sunken rocks. The steamer channel lies near the right bank of the island. No improvement is considered necessary at this place at the present time.

33. Little Goose Island Bar (68.50 miles below Lewiston).—It is a continuation of Little Goose Island. It begins at the lower end of the island and crosses the river diagonally, connecting with the right bank of the river

about 1,500 feet below. The river at this place is about 1,200 feet wide. The water has a depth of 3 feet at its shoalest place. It is proposed to improve at this place by dredging a channel 60 feet wide and 5 feet deep through the bar.

34. Rapid No. 24 (69.01 miles below Lewiston).—This rapid has a length of 0.47 miles and a fall of 3 feet, or at the rate of 6.38 feet per mile, and a current of 6.5 miles per hour. The least depth found was 6.5 feet. The river at this point has a width of about 550 feet. It is flanked on the right by a low gravel bar about 800 feet wide. No impediment to navigation was found at this place.

5291 35. Upper Riparia Rapid (71.03 miles from Lewiston).—It has a length of 0.29 of a mile and a fall of 3 feet, or at the rate of 10.35 feet per mile, and a current of 6.10 miles per hour. The least depth found was 7 feet. The river is here divided by McGuires Island, the main body of water flowing to the right through a channel about 400 feet wide. The channel is about 200 feet wide and 1 foot deep. No improvement is necessary at the present time.

Riparian Bridge (72.85 miles from Lewiston and 73.5 miles from initial point of survey).—This is the Snake River crossing of the Spokane Branch of the Oregon Railroad and Navigation Company's Railroad. It has a length of 1,008 feet and a drawspan at the south end of 350 feet. Its grade is 38.1 feet above low water and 13 feet above high water. This is the initial point of the survey made of Snake River in 1897 from Riparia to the Columbia River, total length 66.7 miles; Lewiston to this bridge, 72.85 miles; Lewiston to mouth of river, 139.55 miles.

Riparia (end of survey, 73.25 miles from Lewiston and 73.5 miles from initial point of survey).—A station on the Spokane Branch of the Oregon Railroad and Navigation Company's Railroad. At this place all freight to and from river points between Lewiston and Riparia is transferred to rail, it being the lower terminus of the steamboat line to Lewiston.

5292 The vessels now in Snake River, between Lewiston and Riparia, are all stern wheel, flat-bottomed boats, a list of which, with their dimensions is as follows:

	Length.		Beam.		Depth.		Draft. Light.		Loaded	
	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
Spokane	100	4	38	6	6	3	2	0	3	8
Lewiston	165	0	34	4	5	3	1	0	2	6
Almota	157	0	36	0	5	0	1	8	3	6
Norma	160	0	32	6	5	6	1	11	3	4
	191	0	36	4	6	0		27	3	9

The difficulties encountered arise in all cases from insufficient depths, occasional obstructing bowlders, and swift currents. Near low water stages the steamers find it necessary at present to lay out ropes fastened to trees or to posts conveniently placed and haul themselves with steam windlesses over shoal places and through rapids too swift to be navigated otherwise. The boats being all flat-bottomed and the bars in this part of the river being all sand and gravel, this can be done without damage until the depth of water becomes insufficient, when navigation ceases. The dimensions of the above steamers are said to be those found best by experience for the conditions to be met in this river, and will not likely change much in the future unless the conditions are decidedly altered.

5293 The comparatively large cross section of the river, the large discharge (22,000 feet per second), and the relatively high average slope (2.67 feet per mile) render the effect of the proposed dredged channels unimportant in changing the area of cross section so as to injuriously alter the currents or levels above, especially as the depth of cut to obtain 5 feet at low water is in most cases slight and not over 3 feet at the worst places. The dikes proposed to not increase the currents above what can be easily ascertained by the present boats. The river bottom at all these places is composed of coarse sand and gravel and small cobblestones which, if not found practicable to remove by increasing the currents by contracting dikes, can probably be easily dredged with a grapple bucket operated by a hoisting engine from a small derrick scow, especially if the bottom should be first loosened with small charges of explosives. In for-

mer years a heavy scraper towed by a steamer gave fairly satisfactory results in scraping bars.

A depth of 5 feet at low water has been selected in the project for the improvement of the river below Riparia (see House Doc. No. 411, Fifty-fifth Congress, second session), and any extensive improvement above
5294 Riparia to be effective should provide no less depth than this over all the above named shoals. The thorough improvement of this section would therefore probably require a deepening of the channel through all these shoal places, the construction of a number of deflecting dikes to secure and maintain the depths, and the removal of all the boulders and rocky points likely to interfere with vessels at low water.

The navigation of this section of river, however, is at present limited to one vessel each way daily, and it is not deemed advisable to include more points for improvement at the present time than necessary to relieve the most troublesome places. Low water periods are of short duration, and present conditions are satisfactory except at low stages. For these reasons the extent of improvement proposed in this report provides only for the following, the dredged channels being 5 feet deep at low water and in most cases 60 feet wide."

5370 Thereupon counsel for defendant read in evidence extracts from the report of the Chief of Engineers for 1876, part 2, as a supplement to the part theretofore read by counsel for complainant upon pages 204, 206, 207, 209 and 234 to 239.

5371 Page 204:

"The river" (says Marquette) "on which we embarked is called Meskousing," (Wisconsin). "It is very broad, with a sandy bottom, forming many shallows, which render navigation very difficult. It is full of vine-clad islets. On the banks appear fertile lands diversified with wood, prairie and hill. Here you find oaks, walnut, whitewood, and another kind of tree with branches armed with long thorns. We saw no small game or fish, but deer and moose in considerable numbers."

5371 Pages 206-7:

The limestone bluffs and highlands begin on the Wisconsin about 8 miles below the portage. Just above

Prairie du Sac appears to be the apex to the highland of the Wisconsin and the head of the great valley through which that river winds. The river is full of islands, formed by the sand-bars, which are constantly increasing in number. The general depth of the river is, at the ordinary height of the water, 4 to 5 feet, but the sand-bars often extend entirely across the river, and have not more than 8 or 10 inches of water; the sands, however, are quick, and oppose but little resistance.

5372 Page 209:

The Wisconsin may be rendered navigable by the removal of the timber from its banks where it overhangs the channel, and occasionally contracting its waters by closing the heads of the sluices or shallow channels around the islands. * * * Its general width is about a mile; these improvements, therefore, will permit the steamboats which navigate the Upper Mississippi to ascend this river to the Great Bend nearest to Lake Michigan.

5372 Pages 234-9:

The Lower Fox forms the outlet of Lake Winnebago, a body of water 35 miles long, from 9 to 14 miles wide, with depths varying in the deepest parts from 12 to 25 feet. Over the 15½ miles of lake navigation, between the Upper and Lower Fox Rivers, there is a depth of over 20 feet. This lake is a great reservoir, and prevents any sudden changes in the volume of the outlet from freshets —the extreme fluctuations in the Lower Fox not exceeding 3 or 4 feet. The level of the lake does not reach more than 3½ feet above the ordinary level maintained by the dams at the outlets, but it is occasionally drawn down by the water-power mills nearly 2½ feet below this level. The total fall from Lake Winnebago to Green Bay is about 170 feet, and the distance 37½ miles. The minimum volume of the Lower Fox is given by Mr. Westbrook at 2,320 cubic feet per second.

5373 The following table is made up from the figures of Major Suter's report, as modified by me in arrangement in the foregoing abstract:

TABLE IN REGARD TO THE LOWER FOX RIVER IN THE AUTUMN OF 1867.

Place	Intermediate Distance.	Distance from mouth of river.	Number of locks.	Elevation overcome.
	Miles.	Miles.		Feet.
Depere, dam	7	7	1	8
Little Kaukana, dam	6	13	1	8
Rapid Croche, dam	6	19	1	8
Grand Kaukana, dam	4½	23½	5	50
Little Chute, dam	2½	26	4	38
Cedars, dam	0¾	26¾	1	10
Appleton, lower dam	3	29¾	1	8½
Appleton, upper dam	0¾	30½	3	29½
Menasha, dam	5	35½	1	10
Lake Winnebago	2	37½	.	.
Total	37½		18	170

(Continued next page.)

5374 TABLE IN REGARD TO THE LOWER FOX RIVER IN THE AUTUMN OF 1867.
(Concluded.)

Place.	Height above Green Bay.	Cost of making navigation from one dam to next above. For 4 feet draught, locks 160 x 35.	For 6 feet draught, locks 220 x 35.
	Feet.		
Depere, dam	8	$45,000.00	$83,300.00
Little Kaukana, dam	16	3,000.00	27,730.00
Rapid Croche, dam	24	4,000.00	41,000.00
Grand Kaukana, dam	74	22,800.00	111,670.00
Little Chute, dam	112	17,530.00	77,200.00
Cedars, dam	122	3,930.00	23,400.00
Appleton, lower dam	130½	.....	11,000.00
Appleton, upper dam	160	18,870.00	63,870.00
Menasha, dam	170	13,270.00	54,200.00
Lake Winnebago	170	.....	.....
Total		$118,400.00	$493,370.00

5375 Condition of the Upper Fox River and improvement in 1866.—The present traveled route between Oshkosh and Fort Winnebago is 104 miles, the air-line being 54 miles. As near as can be estimated, there have been 18,000 feet of cut-off by dredging making a saving of about three-fifths of the distance. The total fall is about 33-1/10 feet. In most places there is a fall of a foot in 2½ miles, but there are long reaches where the fall is scarcely perceptible. Several lakes occur on the course of the river, which are generally shallow and full of wild rice.

The mouth of the Fox River at Oshkosh is very deep; the channel has upward of 20 feet of water, which continues along the whole river-front of the town; thence to Lake Buttes des Morts, and through that lake there is over 12 feet of water; the river is broad and deep, with no perceptible current. About 10 miles from Oshkosh the Fox is joined by the Wolf River, a stream of nearly its own size. This river is navigable for about 50 miles; it penetrates into the lumber regions in the northern part of the State, and a great quantity of logs and sawed lumber is floated down the river to Oshkosh.

After passing the mouth of Wolf River 6 feet is the least depth until we reach Omro Bar, half a mile below the town of that name; thence to the town, 4½ feet of water. This portion of the river is quite crooked,
5376 but this is of no great importance to small vessels, on account of the depth of the water. Two miles below Omro a cut about a mile long, carrying the waters of the Fox straight to Lake Buttes des Morts, would save 7 or 8 miles of distance. From Omro to Delhi there is about 5 feet of water; never less, except in small spots. Above Delhi there is the same depth to Eureka Bar. From here to the town of Eureka 1½ miles, there is only from 4 to 4½ feet, with occasional deep spots. In front of the town there is 6 feet of water. At Eureka there is a permanent bridge, the only one between Berlin and Oshkosh. There are several floating bridges, however, where country roads cross the river. From Eureka to Sacramento there is an average depth of 6 feet. The river is quite narrow.

Above Sacramento there is an average depth of 5 feet

halfway to Berlin; then from 4 to 4½ feet as far as a floating bridge three-quarters of a mile below Berlin. Above this bridge, and also in front of the town of Berlin, there is about 5 feet of water. Between Sacramento and Berlin there is not much marsh along the river, and the banks are generally high. Above Berlin, the average depth is from 5 feet to 6 feet for 8 miles. At this point there is a short bar on which the water is only 3½ feet deep. The average depth above here is from 5 feet to 6 feet, until the mouth of the Puckeyan River is reached.
5377 Just above the mouth of this stream is a short bar with 3½ feet of water. At the lower end of Willow Bend is another short bar with 3½ feet of water. At the mouth of White River is a bad bar 300 yards long, and having only 3 feet of water on it. In the west side of the first bend above White River is a flat bar caused by a sudden widening of the stream. It is 200 yards long, and has 3½ feet of water on it. (The lowermost wing-dam is about 2 miles below State Centre.) There is a bar below this lower wing-dam with 3 feet of water. Above this wing-dam there is from 3½ to 4½ feet of water; usually 4 feet and often more. The banks of the stream from Berlin to the lower wing-dam are generally low and marshy, but above this point they are quite high, and continue so to the mouth of the Mechan River. There is a second wing-dam at State Centre. At Saint Mary are the ruins of a bridge. From Saint Mary to Princeton the river is quite shoal. The average depth is 4 feet, but on the bars there is less than 3 feet. There are two more wing-dams at Princeton. There is also at this point a good, permanent bridge across the Fox.

Between Princeton and the mouth of Mechan River there are three wing-dams. In this portion of the river
5378 the water is quite shoal, not more than 3 feet deep. From Omro to the mouth of Mechan River the fall is about 1 foot in 2½ miles, and there is quite a strong current. Above Mechan there is slack-water to Lake Puckaway. The river is very wide, with 6 feet or 8 feet depth of water or more. Within the Big Bend, above Princeton, the ground is quite high, about 30 feet above the level of the river. If a canal could be cut through here about 10 miles would be saved, as the neck is only a mile wide.

Lake Puckaway is a sheet of water 8¼ miles long and

from 1 to 2 miles wide. The lower end of the lake is very shallow and full of reeds and wild rice. A channel, running northeast from Marquette, has been cut through for steamers. It is from 3 feet to 3½ feet deep. A channel, having 4 feet of water, leads along the eastern shore of the lake. The bottom of the lake is very soft, black mud, through which a channel of any depth can be easily dredged. For about a mile to the westward of Marquette the lake is filled with rushes. A channel exists, however, which has about 4½ feet of water. After getting out of the rushes, there is from 5 feet to 6 feet of water to the end of the lake.

At the mouth of the Fox, that is, where it enters Lake
5379 Puckaway, there is a bar half a mile long, where there is only from 3 feet to 3½ feet of water; above this there is 5 feet or 6 feet for about 3 miles. Just below the large bend there is about 4½ feet; then for a mile from 6 feet to 7 feet. The rest of the way to Montello the river is shallow. Three and a half feet is the average depth, and 3 feet is the least. There are a good many sand-banks just below Montello which wash into the stream and cause bad bars. The current between the lake is quite rapid.

At Montello, a lock and dam are being constructed to raise the water above Lake Buffalo. As shown by the plan, it is designed to cut the canal through into a bayou, which has a depth of about 7 feet. The Montello River has also been turned into this bayou.

The dimensions of the lock, dam, and canal when finished will be as follows: Dam, 151 feet long; canal, 650 feet long and 90 feet wide; lock-lift, 3 feet; depth on lower miter-sill, between 8 feet and 9 feet; height of lock, 15 feet; length, 160 feet; width, 35 feet; composite lock, with head-walls of masonry.

Above the mouth of Montello River there is from 4 to 4½ feet of water as far as the lower end of Lake Buffalo. Lake Buffalo is a large rice-field, about 13½ miles long
5380 and half a mile wide. The Fox crosses it in a very tortuous but deep channel. After entering the lake there is from 6 feet to 9 feet as far as Packwaukee, and even as deep as 15 feet. This is a pile-bridge across the lake at Packwaukee. From Packwaukee a good channel leads to the end of Buffalo Lake. The water runs from 7 feet to 9 feet in depth. Between Lake Buffalo and Lake

Menomin there is a channel of about the same depth, and also through Lake Menomin. This channel is exceedingly crooked. Lake Menomin is a large wild rice-field like Lake Buffalo. It is 1½ miles long by half a mile wide. After leaving this lake, and especially after passing Merritt's Landing, just above Moundville, a series of small, but bad, bars are met with. They are caused by the washing of a high sand-bluff on the river-bank. These bars have barely 3 feet of water on them. The worst of them could be avoided by a cut-off. In the last mile below Roslyn the channel is as a general rule quite deep—from 6 to 8 feet; but shoal spots occur, where only 4½ feet is to be found. The channel is exceedingly crooked and narrow. A great many cut-offs should be made in this portion of the river.

From Roslyn to the first cut-off there is from 5½ to 7 feet of water. Just below this cut-off is a short bar with only 3 feet of water. In the cut itself there is about
5381 4 feet. Above the cut is another bar with 3 feet depth. This first cut-off is only about 40 feet long; but it saves nearly a mile of distance. From the first to the second cut-off the depth is about 4½ feet. In the cut-off there is a bar with about 3 feet of water. The rest of the cut has a depth of about 4½ feet. From the second to the long cut-off there is from 6 to 9 feet of water. At the lower end of the long cut-off there is 5 feet of water; at the middle, 4 feet; at the upper end, 3 feet, with a short bar having from 2 feet 8 inches to 3 feet. From the end of the cut-off to Governor's Bend lock there is about 5 feet of water. Between Governor's Bend lock and Roslyn the stream is very crooked, and several long cut-offs should be made. The cut-off just below Governor's Bend is about a mile long, and saves about 3 miles. Governor's Bend lock, dam about 4 feet high and 69 feet long. Canal, 570 feet long and 57 feet wide. Lock, composite; lift 4 feet; depth on lower miter-sill, 5 feet 6 inches; height, 15 feet; length, 160 feet; width, 35 feet; new and in good order. From this lock to Winnebago lock there is slack-water. The channel leads almost entirely through cut-offs, and is quite free from sharp bends. The width of these cut-offs is about 60 feet. The depth will average 4½ feet to within a mile of Winnebago lock. In this last distance the channel is
5382 full of sand-bars. The water gradually shoals from 4½

feet to 2½ feet. At the foot of Winnebago lock there is 8 feet of water.

At Winnebago lock the lift is 7 feet; depth on lower mitersill, 6 feet 1 inch; height, 17 feet; length, 160 feet; width, 35 feet. Composite lock with masonry head-walls; all in good order.

The canal which connects the Fox and Wisconsin Rivers is quite shoal. At the lower end it is 5 feet deep for about 200 feet; then 3 feet deep to within 500 feet of the first railroad-bridge; then 2½ feet deep to the second railroad-bridge; then 2 feet deep to the town of Portage. At the upper or Wisconsin end it is about 18 inches deep. The mill at the lower end draws the water down about 1 foot. At the upper end of the canal is a guard-lock, which is used as a lift-lock when the Wisconsin is high. It is in a very dilapidated condition, and should be rebuilt. It is 2¼ miles (12,400 feet) in length, and 75 feet in width. It is cut through a flat, sandy plain which separates the waters of the Fox from those of the Wisconsin. The Fox River is about 5 feet lower than the Wisconsin in ordinary stage of water. During high water the Wisconsin overflows this neck of low ground at Portage, and also 5 or 6 miles above, and a large portion of its waters are thus diverted to Green Bay. The spring rise in the Fox is principally owing
5383 to this cause, for the Fox itself fluctuates very little. About 7 miles below Portage a stream called Big Slough comes into the Fox. During high water this connects with the Wisconsin and becomes a very considerable stream, bringing a large volume of water into the Fox. In fact, the greater part of the low country between the two rivers is overflowed by the Wisconsin at this time. It will be seen that the canal is not straight, but makes a considerable bend to the westward. The object of this was to place the mouth of the canal on the Wisconsin side, above an island. It was afterwards proposed to give it a different direction, but the idea has never been carried out. At present the main bulk of the Wisconsin runs through the inshore channel, and the whole of it can be diverted through there if desirable. It is also much easier to protect the mouth of the canal in the proposed position than in the one it occupies at present. But the change is not a matter of any great importance.

The canal at present is almost filled up with sand, but it is being dredged out.

The only plan of improvement of the Upper Fox River which gives promise of permanency is to create slack-water navigation throughout the whole length of the stream by means of locks and dams. As a great deal
5384 of valuable property would be overflowed and ruined by putting in high dams and locks of great lift, it appears preferable to use low dams, say 3 feet high, and then lower the bed of the stream above and below the dam by dredging sufficiently to destroy the current. Further dredging will give the requisite depth for navigation, and the channel thus made will remain permanent.

Three locks appear necessary between the mouth of Mechan River and Omro. Above the former and below the latter point there is slack-water already, or will be when certain improvements in progress are finished; notably the Montello lock and dam.

The total fall between Mechan River and a point 1½ miles above Eureka is 12.87 feet, which it is proposed to distribute as follows: one lock at Princeton, 4 feet lift; one lock at Fiddler's Bend, 4 feet lift; and one lock 1½ miles above Eureka, 5 feet lift.

Ten feet of this total lift is included in the 12.87 feet, the remainder of that sum being allowed for backwater and flowage.

Details from Winnebago lock to Governor's Bend lock; distance, 5½ miles; fall not accurately known, as the bed of the stream has been much lowered by dredging since the last survey was made. The lock has about
5385 4 feet lift, so that the fall is probably between 4 and 5 feet. Slack-water exists above Governor's Bend dam.

Governor's Bend lock to Montello lock; distance 21 miles; fall, 5.95 feet, as nearly as can be computed. This is thought to be too much. The Montello dam is to raise the water 3 feet, and it is proposed to lower the bed below Governor's Bend lock 1 foot by dredging. This will, it is hoped, give slackwater back to Governor's Bend lock; but, in case it does not, the Montello dam can be raised 1 foot more. It will probably be necessary to lower the bed of Governor's Bend lock 2 feet to enable a vessel drawing 6 feet of water to get through it; but this cannot be stated positively until a new set of levels has been run to ascertain the exact amount. The

Montello dam can be raised, if necessary, without overflowing a great extent of country.

From Montello lock to head of Lake Puckaway: distance, 7 miles, fall, 4.93 feet. Bed of stream to be lowered 4 feet by dredging below the Montello lock, leaving .93 foot fall in 7 miles, or about .13 foot to the mile. From the head of Lake Puckaway to the mouth of Mechan River there is slackwater.

From mouth of Mechan River to Princeton lock: distance, 5¾ miles; fall, 2.57 feet. Water to be raised 2 feet by a dam, and lowered below the dam 2 feet by dredging. Lock, 4 feet lift; flowage, .57 foot.

5386 Princeton lock to Fiddler's Bend lock: distance, 12 miles; fall from foot of Princeton lock, 2.92 feet. Water to be raised 2 feet by the dam, and lowered 2 feet below the dam by dredging. Lock, 4 feet lift; flowage, .92 foot.

Fiddler's Bend lock to Eureka lock: distance, 15¼ miles; fall from foot of Fiddler's Bend lock, 3.38 feet. Water to be raised 2 feet by a dam, and lowered below the dam 3 feet by dredging. Lock, 5 feet lift; flowage, 1.38 feet.

From Eureka lock to Oshkosh: distance, 24 miles; fall, 5.80 feet. Water to be lowered 3 feet at upper end of level by dredging, as stated for Eureka lock. This will reduce the fall 2.80 feet in 24 miles, or a little less than 12 foot to the mile, which is practically slackwater.

The volume of the Upper Fox at low water is not stated by Major Suter, nor have I seen it stated for any point of its course. At the lock near Fort Winnebago it is a very small stream at low water, merely sufficing as a feeder to slackwater navigation. Its amount is of no practical importance in this view, for any needed supply can be drawn from the Wisconsin River, which is the feeder for the canal connecting the two streams.

Major Suter states the lift of the lock at Fort Winne-
5387 bago to be 7 feet, and the height of the Wisconsin above the Fox at this point to be 9½ feet. This fall of 2½ feet in 2⅛ miles is inadmissible in a canal for navigation, and is only allowable for supplying water-power. The guard-lock at the head of the canal communicating with the Wisconsin is also a lift-lock even at low water, and enables vessels to pass into the Wisconsin. To the preceding amount of elevation between the Wisconsin and

Lake Winnebago, as stated by Major Suter, must be added 2½ feet for the Portage Canal guard-lock, and he makes this allowance in his table of total elevations."

5544 SURVEY OF LIEUTENANT G. K. WARREN.

Page 1438.

In 1853, under direction of Lieut. Col. S. H. Long, a survey of the Rock Island Rapids was made by Lieutenant Warren, the report of which was transmitted to the House of Representatives May 20, 1854.

From Lieutenant Warren's report we gather the following:

"Louisville, Ky., April 6, 1854.

Sir:

Having completed the drawings of the rapids of the Mississippi, constructed from surveys made by order of Lieut. Col. S. H. Long, I have the honor to submit this report on the subject. The instructions required such surveys at the *lower rapids* (Des Moines), and at the upper rapids (Rock River), as were necessary to determine the best and most economical route along the bed of the river for forming a continuous navigable channel, 200 feet wide and 4 feet deep at the lowest stages. It is hardly necessary to state that this required an entirely new survey, the maps made in 1837 by Lieutenant Lee being on too small a scale to exhibit the character and extent of the channels and their obstructions.

5545 The time was too limited with the means at hand for a thorough survey of the river-bed, and it was determined, after a careful examination and consultation with some of the ablest pilots, to confine the more accurate survey to the vicinity of the channel now navigated. This channel is undoubtedly the most practicable one for improvement.

* * * * *

Upper Rapids.—These, beginning at half a mile above the lower end of Rock Island, extend 13 miles up the river. The principal reefs are known as Lower Chain (at foot of rapids), Rock Island Chain (2 miles from foot), Duck Creek Chain (4½ miles from foot), Campbell's Chain (7½ miles from foot), Saint Louis Chain (10 miles from foot); Sycamore Chain (12 miles from

foot), and Upper Chain. Unobstructed spaces intervene between these chains, the greatest being 2 miles, between Campbell's and Saint Louis Chains.

Much of the rock is a very friable limestone, and when quarried breaks up in the smallest pieces. A very soft yellow sandstone is also common and a little slate. Large granite boulders are found in many places.

Owing to the softness of the rocks composing the reefs, they have been much more worn away and dislocated by the ice and currents than at the lower rapids, and do not form as great an obstruction. Small steamboats drawing 2½ feet of water pass them at the lowest stages towing their barges. The navigation, however, is attended with great risk, and every year that has low
5546 water sees several steamboats sunk and others seriously injured.

Duck Creek and Campbell's chains are particularly dangerous. The current is moderate at both (about 3 miles per hour), but the boat to avoid the prominent rocks is required to make such sudden turns as cannot often be performed, especially by stern-wheeled boats.

These two chains claim the earliest attention. Sycamore and Upper chains should have the next. Rock Island chain is a continuous flat reef across the riverbed, with a low-water depth of 2½ feet. To make 4 feet a cut through it 600 feet long will be required. The water was raised here about 10 inches by building the dams connecting the islands with the Illinois shore. The width of the river was thus considerably reduced. In the narrowest part it is but 400 yards wide. The average width of the rapids is about half a mile. * * * The chutes behind Campbell's and Fulton's Islands are not navigable, and could not be made so as easily as the channel now used. But slight benefit would result from closing them. The only method of improving the upper rapids is to remove the rocks that now obstruct the channel and close some of the side chutes whose tendency is to produce cross-currents. The following tables show the amount of rock to be removed to make the present channel 4 feet deep.

5547 Davenport, Iowa, December 20, 1866.

Sir:

In obedience to your orders of the 5th of October, 1866, * * * I have the honor to submit the following report, with the accompanying drawings:

I left Keokuk, Iowa, on the 6th of October, 1866, arriving at Davenport, Iowa, the next day, and immediately commenced organizing my parties, and in order that the work might be pushed forward with the greatest dispatch consistent with the importance of the work, and inasmuch as the season for work would be of short duration, I put into the field all the force that could work to advantage.

The hydrographic party was placed under the immediate charge of Mr. J. E. Abbott, civil engineer. Their work included all that related to the topography of the bed of the river, and other information concerning the flow of the water over the rapids.

A large party was placed under the charge of Mr. W. D. Clark, civil engineer, with a view of making an accurate survey of the valley on both sides of the river, showing the meandering of the shores and gathering all other information necessary for the investigation of the several projects for the improvement of the navigation on the upper rapids. Lines of levels were run on
5548 both shores from a point about 4 miles below Rock Island to a point about 4 miles above LeClaire; perpendicular offsets connecting with the main line at various distances from 50 to 500 feet apart, according to the changes in the general feature of the shore, were run.

As the time allowed us would not warrant an entire resurvey of the bed of the river, and moreover, as General Warren's map, wherever tested, proved to be sufficiently accurate, I caused Mr. Abbott's party to restrict themselves at first more particularly to a thorough examination of the bottom on the chains, in order to get the most accurate possible data for estimating the amount of rock excavation necessary to make a channel of 200 feet width and 4 feet deep in low water. A favorable season has, however, enabled us to accomplish more hydrographic work than could reasonably have been anticipated.

The upper or Rock Island Rapids begin at a point near the lower end of Rock Island, and extend 14.26

mile up the river to a point near the lower end of the town of LeClaire. The bed of the river throughout this entire distance consists of a hard surface of limestone rock, worn in many places into deep furrows by the long continued action of the water and the material washed along the bottom. This rock crops out along the shores,
5549 and is generally found stratified in thin layers. The lower strata in the bed of the river appear to be harder, and of different thicknesses—from 4 inches to 2 feet and upward. There are also a number of large, erratic boulders of granite to be met with, but these, as a general thing, do not prevent serious obstructions, but in some cases as at Campbell's Chain, they rather serve as guide marks for pilots, who would protest against their removal on that account, unless replaced by other equally permanent marks.

The only difficulty in the way of navigating the rapids consists in passing over the chains, of which there are seven, viz.: the upper or Smith's Chain, Sycamore, Saint Louis, Campbell's, Duck Creek, Moline and lower chains. At these places the rocky bed of the river projects out from each shore like a bar, the projecting points sometimes overlapping each other, leaving only a narrow, tortuous channel between them, and in some instances extending like a dam or rocky bar entirely across the river. Between the chains, throughout almost the entire distance, is a wide and navigable channel, with plenty of water for boats that navigate the upper Mississippi and at such places the velocity of the current is much less than on the chains.

Between the head and foot of the rapids, a distance of a little more than 14 miles, nearly eleven miles, are good navigation in the lowest stages, the obstructed portion
5550 covering a distance of only more than 3 miles. * * *

The steamboat channel, beginning at the head of the rapids, runs in close to the Iowa shore, with plenty of water till it strikes the upper chain, generally called by pilots Smith's Chain; here the channel is narrow, crooked and the current swift, having a velocity of more than 3 miles an hour. A large reef or rocky bar, known as Asprey Patch, stands in the middle of what would otherwise be a wide channel. This chain is not considered, however, as difficult or dangerous as most of the others.

Passing Smith's Chain, the channel inclines gradually towards the Illinois shore, until it comes to Sycamore Chain, which is conceded to be the most difficult place to pass on the whole rapids. Here the rocky ledges project out from each shore, leaving between them only a narrow and crooked waterway. The current being swift and the turns short, boats in passing are exposed to strong cross-currents, which tend to sweep them on the lower ledge; besides, in one of the sharp bends a deep pocket has been cut, and a large amount of water runs through it, which, by its action, tends to draw boats into it, where they sometimes become fastened, and to extricate them involves a loss of much time, and is a labor of great difficulty.

The difficulties at Sycamore Chain are not the result of a want of sufficient depth of water, for there is a good
5551 depth in the channel, but they rise from its narrowness and crookedness, together with the strong cross-current that sweeps over it.

After passing Sycamore Chain, the channel runs close to the Illinois shore, passing inside of Crab Island, where it becomes very narrow, and then inclines toward the Iowa shore until, at Saint Louis rocks it reaches a point about mid-way between the Illinois shore and Fulton's Island. Passing the Saint Louis rocks, it again inclines toward the Illinois shore until it reaches Saint Louis Chain, where the channel becomes narrow again, but boats that pass the chains above or below this seldom experience great difficulty here. Below this chain the channel opens up gradually into a stretch of 3 miles, perfectly navigable at all times. In front of Hampton the current becomes quite sluggish.

Opposite the head of Campbell's Island the channel crosses Campbell's Chain, which is not only crooked and exposed to cross-currents, but the rocky ledge extends entirely across the river. In the channel pursued by steamboats across this chain the water is not much deeper than on either side of it. The slough behind Campbell's Island is not used for navigation.

After passing Campbell's Chain, with the exception of
5552 the rocks near Winnebago Island, which are somewhat of an obstruction, the channel is wide and easily navigated until it comes to Duck Creek Chain, nearly 3 miles below. Here it is crooked and narrow, so much so as

frequently to necessitate the use of anchors at low water for the purpose of working boats through. This is another difficult chain to pass through.

Below Duck Creek the channel widens out again, giving good navigation, with the exception of one narrow place for about 2 miles, when it comes to Moline Chain. Here again the ledge of rock extends entirely across the river, and forms in low water an impassible barrier to boats, drawing more than 30 inches. The water passes over this chain at a mean surface velocity of 3.878 feet per second at low water, and a maximum velocity of 5.0545 feet per second, as determined by actual observation with floats.

The dams of Moline and Benham's Island cut off a large body of water that would otherwise flow out of the main channel, and the universal testimony of the pilots establishes the fact that they have raised the water on this chain some ten inches. It is generally conceded that the navigation has been materially benefited in low water, but the increased volume of water has no doubt increased the velocity of the current, also. During the low stages, however, when the velocity of the current is less than at high water, this increase is of little account in com-
5553 parison with the advantages of getting the increased depth.

From Moline Chain the channel widens out again, becomes deep, inclining towards the Iowa shore, and is perfectly navigable for the largest boats on the upper Mississippi until it comes to the lower chain. The channel here is very crooked, but the current is not so swift as on some of the other chains, and consequently not so difficult to pass. This chain is about half a mile above the Chicago and Rock Island Railroad bridge, and no more natural obstructions present themselves below this point in the ordinary low stages. * * *

The average length of the boating season is about 260 days. During the winter, as a matter of course, navigation is closed by the ice.

When the river is opened to navigation, about one-third of the whole time is rendered dangerous by the shoalness of the water on the rapids and sometimes impassable for boats drawing more than 2 feet. In the year 1864 the water was lower than has been known be-

fore in many years, attaining its lowest point September 2.

From the record of the stages of water kept at the Chicago & Rock Island railroad bridge, it is found that the greatest range between high and low water during
5554 the last 7 years is 15 feet 9-1/2 inches, being the high water of 1862 and the low water of 1864, the mean range during the same period being less than 12 feet.

The range between the highest floods and the lowest water at other points along the rapids, from the best authority that could be obtained, are at Valley City, opposite Hampton, 13 feet 8 inches, and at LeClaire 12 feet, which, if correct, shows a diminution of only 3 feet, 9 inches, in the fall at high water as compared with that at low.

The average width of the river on the rapids is about 1/2 mile. At LeClaire it is only 1,500 feet in one place, but widens out above and below. Below the rapids the river is wider than on them, as may be seen from the map. A line of levels, from the head to the foot of the rapids, shows a fall of 21.46 feet in a distance of about 14 miles, or an average fall of 1.53 feet per mile in low water.

The greatest fall is on Moline and Sycamore chains.

The area of a cross-section at the head of the rapids, where the river is only 1,650 feet wide, is 30,220 square feet; at a point near Sycamore chains, 12,408 square feet; at Moline Chain, 6,829 square feet.

Careful experiments were made on the velocity of the current in order to determine the amount of discharge over the rapids in ordinary low water. For this pur-
5555 pose the stations were taken and a number of velocities between them at different distances from the shore determined by floats; a mean of these was taken as the surface velocity.

The mean area of the two cross-sections at the stations was taken as the rear of the cross-section, and by applying this to D'Aubisson's formula for the approximate discharge of a river, it was found to be 36,456 cubic feet per second. The approximate discharge behind Campbell's Island was also determined in the same manner, and was found to be 10,726 cubic feet per second.

With the exception of the places where the bluffs ap-

proach close to the river the banks are usually steep and rocky. * * *

5556 The question is often asked by men who have navigated this river during many years, and was once asked me by a very distinguished engineer, why I should be in such a haste to get 6 feet of water in this canal at low stage, when the radical improvement of the river is so far from being complete. There are two reasons for this: The first is that the falls of the Ohio are the worst obstructions on the whole river. The works, to give the navigation the relief which it deserves here, should be of a permanent character, and will cost a great deal of money. The normal depth fixed for the improved Ohio River near this obstruction is 6 feet at low-water. The works here should therefore be arranged for such a depth on general principles. The second reason is of more present importance than the first. Everyone who has any knowledge of this river knows that if there were no more water in the canal at the lowest stage than on the bars above and below it, it would fail just when every inch of water is needed in it, that is, when the river has risen 4, 5, or 6 feet above the lowest stage. As the river rises the surface of water in the canal rises equally with the surface of the river at the head of the falls. Now when the river rises above the lowest water stage and begins to be used by navigation, there is a rise of more than 1-1/2 feet on all the bars above and below for every

5557 single foot rise at the crest of the falls of water surface of the canal.

If the depth of water in the canal at the lowest stage were therefore left at 3 feet, when there would be 7, 8 or 9 feet in it due to a rise, there would be 9, 10-1/2 and 12 feet, respectively, over the bad bars above and below. There would then be a deficiency in the depth of the canal of 2, 2-1/2 and 3 feet, respectively. But in determining the available depth of water through the canal, we should always allow at least 1 foot for mud to prevent delay. So that the real deficiency in the depth of the canal at these stages in comparison with what it should be would be 3, 3-1/2 and 4 feet, respectively, at such times. Now, the deeper boats can load at these stages the better it pays them. To keep them a less depth than 6 feet in the canal at the extreme low stage

of the river would be a great injury to commerce, and particularly from now until the whole river is improved.

5558 The Ohio River Basin, according to some bulletins relating to the census of 1880, which I have been able to see, still maintains its supremacy over any other of the portions of the great Mississippi Basin. It still yields enormous quantities of iron, steel, coal, petroleum, wheat, corn, oats, salt and tobacco, and its numerous manufacturing interests are on a steady and healthy increase.

The total internal-revenue collections for the fiscal year which ended June 30, 1881, were over $135,000,000. Of this amount over $87,000,000 were collected in the eight states which, wholly or in part, lie in this basin.

No toll has ever been paid on the Des Moines and Rock Island Rapids in the Upper Mississippi, and Congress has appropriated $5,955,350 to improve them, against $2,600,000 expended here.

In order to improve the navigation to Lake Superior, the Government in 1852 gave the State of Michigan 750,000 acres of land and the right of way to build a canal around the falls of Saint Mary's River, and has appropriated $2,616,000 since for its enlargement and the improvement of the river.

As the work now stands, it is inadequate to serve the interests of the commerce of the Ohio River, and it will become more and more so each year until the additional works suggested by me are completed."

5559 "SPECIAL REPORT.

UNITED STATES ENGINEER OFFICE,

ROCK ISLAND, ILL., March 15, 1880.

GENERAL:

I have the honor to acknowledge the receipt of a letter from your office, dated March 9, 1880, containing a resolution of the House of Representatives calling for certain maps and reports in reference to a proposed widening of the Rock Island Rapids.

The accompanying map (Atlas, p. 3923) (For copy of said map see Appendix, ...), which shows the present 200-foot channel and the work required for increasing this width to 400 feet, was prepared last winter, but as

yet no reports on the subject have been made. I would therefore submit the following:

The Rock Island or Upper Rapids of the Mississippi River extend from Le Claire, Iowa, to Rock Island, Ill., a distance of 14 miles. The river over this reach consists of a succession of deep pools separated by chains of rocks, through which the water, in the course of centuries has cut irregular channels.

The fall from the head to the foot of the rapids is about 20 feet, giving a velocity of current of from 2 to 10 feet per second at the shoal places.

Previous to improvement the rapids could not be
5560 passed by the larger class of steamboats at a 2-foot stage, and at medium stages boats drawing from 3 to 4 feet could only pass on calm days and by using extreme caution.

Congress caused a survey and report on the improvement of the rapids to be made in 1866.

In 1867 the work of excavation was commenced, in accordance with the approved plan, which was to give a channel over the chains 200 feet in width, with a depth of 4 feet below low-water of 1864. From 1867 to 1879, inclusive, $1,150,650 were appropriated, for which sum about 90,000 cubic yards have been removed, virtually completing the above mentioned plan.

The work already accomplished has greatly benefited navigation, but still certain difficulties are met with.

1. The channel is so crooked that it is not practicable in its present condition to provide a system of lights, and the navigation of the rapids is suspended during the night.

2. The width of 200 feet is not sufficient to admit of 2 boats with barges passing each other, so that either the ascending or descending boat must wait in one of the deep pools until the other has passed through a cut.

3. A fresh breeze, acting against the very long and high Mississippi steamers, endangers, and a strong wind prohibits, navigation through the narrow channels.

5561 A. A large steamer ascending the rapids through the comparatively narrow 200-foot channels draws down the water to such an extent as to materially reduce the depth in the cuts, so that a 4-foot channel is not really available at all parts of the rapids during a low-water stage of the river.

The most available plan that can be suggested for overcoming these difficulties is, as shown on the accompanying map, to widen the present cuts, giving a new channel 400 feet in width. By this widening, the second and third difficulties would be done away with, the fourth would be greatly reduced, and by so straightening the channel as to obtain long reaches, lights could be established which would overcome the first difficulty.

To increase the width of the channel to 400 feet, giving a depth of 4-1/2 feet below low-water, which will insure a grade as low as that of the present cut, will require the removal of 299,811 cubic yards of rock, and will cost approximately $1,258,866.

Boats drawing five feet can pass through the Des Moines Rapids Canal during extreme low water.

If it is deemed advisable to give the same available depth and a perfectly safe channel over the Rock Island Rapids, the cuts should be made 400 feet wide, and excavated to a depth of at least 6 feet below low-water of 1864. This would require the removal of 581,835 cubic yards of rock, which would cost approximately $3,491,010.

5562 I have estimated the cost of removing rock at $6 per cubic yard, which would be sufficient, provided an appropriation was large enough to justify the building of coffer-dams and a systematic method of working.

The plans present could undoubtedly be so modified during the progress of the work as to require cutting on but one side of the channel where it is now supposed to require cutting on both sides; such changes, when practicable, will reduce the estimated cost.

The interests of navigation of course require that in time all the proposed work shall be done, but as the obstructions at the Rock Island Rapids are made up of a succession of shoals, the improvement of each may be considered as separate, complete within itself, and benefiting navigation just so much.

The only point in connection with the proposed widening of the channel which has not yet been considered is the effect which the straightening and improving of present channel would have on the depth of the water and the rapidity of the current."

6337 ILLINOIS & MICHIGAN CANAL COMMISSIONERS' REPORT OF 1900 EMBRACING A DOCUMENTARY HISTORY OF THE ILLINOIS & MICHIGAN CANAL.

This report by the Canal Commissioners is a printed volume of 273 pages.

(THE DESPLAINES RIVER.

Data from the

"DOCUMENTARY HISTORY OF THE ILLINOIS AND MICHIGAN CANAL" PUBLISHED IN THE CANAL COMMISSIONERS' REPORT FOR 1900.

pp. 60-268.

ROUTE OF CANAL.)

From report of J. M. Bucklin, Dec. 18-1830.

6376 "From the mouth of the Chicago river to the point fixed upon as the entrance of the canal, there is no obstruction whatever to its navigation by boats drawing under five feet for that distance, which is five miles, this river forms a perfect natural canal, its banks being low and of uniform heights and its waters supplied by the Lake." (Can. Com. Rep., 1900, p. 73.)

"Leaving the river at the point above mentioned, the line of the canal inclines towards the Regula (as will be seen by a reference to the accompanying map) and follows along the margin of the Portage lake until it strikes the river Des Plaines at the ford, a distance of nine miles; the excavation throughout this distance will pass through a hard ferruginous clay (as has been ascertained by borings) at an average depth of 15.41 feet. From the ford of the Desplaines to the Ausoganashkee swamp, the line runs through the valley of the Des Plaines river, at an average elevation of 16.27 feet above the bottom of the canal. On this part of the route, which is nine miles in length, the excavation to the depth of 6.27 feet is good consisting of sand and clay, but the remaining ten feet composes almost a continuous map of limestone extending with little intermission from the ford of the Des Plaines to the end of the line surveyed, it it probably of the same character as that in the bed of the river, the upper strata only of which appear to be detached." (Can. Com. Rep., 1900, p. 73.)

"The Ausoganashkee or Reed swamp does not present

any insurmountable obstacles to the passage of the canal through it, although with the lake as a feeder, it must necessarily be attended with great expense. The canal is located immediately across its mouth, which is half a mile in breadth, the depth of the excavation rendering
6376a it expedient to select the most direct route. The surface of this swamp is 15.86 feet above the bottom of the canal, 9.80 feet above the level of Lake Michigan and 2.30 feet above the river Des Plaines at its low stage, the excavations through it will consist of 5½ feet of mud and earth and 10.36 feet of rock." (Can. Com. Rep., 1900, p. 74.)

"To carry the canal entirely through the deep cut which terminates about six miles below the Ausoganashkee will probably increase the above amount to two millions and a half, the great expense of time and money thus necessarily incurred in making a feeder of the lake renders it desirable to use for that purpose some stream by which the summit level can be better adapted to the elevation of the ground on the line of the canal. The river Des Plaines when low affords a very considerable quantity of water, but the Calamic river which empties into Lake Michigan about twelve miles south of Chicago, furnishes an abundant supply (320,000 cubic feet per hour) and is in every respect, so far as my observation extends, advantageously situated as a feeder. Too much time was necessarily consumed in the survey of the line of the canal to admit of as particular an examination of this river as from the facts collected respecting it, it undoubtedly deserves." (Can. Com. Rep., p. 74.)

"It is evident from the nature of the ground as well as from the representations of the inhabitants of the country, that there is in times of high water, a communication between the river Des Plaines and Calamic, through the valleys of the Ausoganashkee swamp and Stoney Creek, as neither of these rivers rise more than ten or twelve feet, and as there is no perceptible current between them when both are up, it is reasonable to conclude that the intermediate ground is low enough to admit of the waters of the Calamic being brought into the valley of the Des Plaines at a small expense, provided a dam can be made in the former at a sufficient elevation to give the feeder its proper descent."

THE SECTION OF LANDS UNDER THE U. S. LAND GRANT.

From Reports of ROBERTS, JAYNE AND DUNN, CANAL COMMISSIONERS.

December 27, 1830.

6377a "The commissioners selected each alternate section having an odd number, commencing with township No. 32 north range No. 1 east of the third principal meridian, within five miles of each side of the canal, making in all four hundred and ninety sections." (Can. Com. Rep., p. 76.)

PLATTING OF CHICAGO,

ITS COMMERCIAL IMPORTANCE.

6378 "That means might be realized as early as possible to commence the work of excavation, the commissioners determined to bring into market the remaining canal lands, on the 27th day of September at Chicago, and on the 4th day of October following at the rapids of the Illinois river. In the meantime they laid off into town lots part of section 9, T. No. 39 N., R. 14 E., lying on the Chicago river near Lake Michigan, and part of section No. 11, T. 33, N., R. No. 3 E., situated at the mouth of Fox river on the Illinois." (Can. Com. Rep., 1900, p. 77.)

"A portion of these lots were with the remaining canal lands (except fractional section 15, T. 39 N., R. 14 E.) after public notice given, offered for sale at the times and places specified. The report of the Treasurer before referred to, embraces a satisfactory and detailed account of these sales. The sales of lots in the town of Chicago on section 9, T. 39 N., Range 14 E., amounted to about $4,363 and were so flattering as to inspire the Commissioners with a confident hope that the remaining lots, say about three-fourths, would with proper care and management, yield a very handsome increase to the canal fund. This town is situated on the Chicago river near its mouth and possesses many advantages, natural and advantitious. It is the only eligible site for a town on the lake shore within the limits of Illinois surrounded by a beautiful champaigne fertile country, surpassed by none in the richness of its products and from the long

experience of its inhabitants is decidedly healthy. (Can. Com. Rep., 1900, p. 77.)

Its prominence in a commercial point of view has already prompted merchants from the northeastern part of the State and northwestern part of Indiana to take their produce to Chicago, ship for Detroit, Buffalo and New York and return by the same route, as the safest and cheapest. Saving on the transportation of goods 1.25 per hundred weight and performing the trip ten days sooner than by either of the other channels, through which merchandise is brought into these sections of the two States. The circumstances of Chicago being located at the head of the contemplated canal will make it the future depot of all the surplus products of the country on the Illinois river and its tributaries. These advantages point out its importance and at once elicit the fostering care of the Legislature of this State. Nothing would conduce more to the prosperity of this place than the construction of a safe harbor at the mouth of the Chicago river." (Can. Com. Rep., 1900, p. 77.)

WATER SUPPLY OF RIVERS.

THE DEEP CUT AND SHALLOW CUT.

6378a COST OF CANAL.

"From the estimate embraced in the engineer's report, it will be discovered that the cost of construction of that part of the canal, included within the points mentioned, will exceed one million and a half of dollars. This estimate is founded on the presumption that the water required, say four and a half feet in depth, is to be supplied from the Lake; and that the dimensions of the canal are twenty-six feet in width at bottom, with a slope on the sides (in earth) of one foot and three-quarters base to every foot perpendicular rise. The law on this subject has prescribed that the dimensions of the canal shall be as follows: "At least forty feet in width at the summit water line, twenty-eight feet wide at the bottom and of sufficient depth to contain at least four feet water." The difference in the dimensions assumed by the engineer, for the purposes of calculation, and those

prescribed by law, is so slight that the estimate predicted on the first may be safely relied on as appreciable to the latter." (Can. Com. Rep., 1900, p. 78.)

"The great expense of construction that must be incurred on the plan of using the waters of the lake to supply the summit level induced the commissioners to make such examination and inquiries as time permitted into the practicability of procuring a sufficient supply of water from some other source, that would raise the summit level sufficiently high to avoid rock excavation. It is believed that the river Calamic which emptied into the Lake about twelve miles south of Chicago, furnishes an abundant supply of water (320,000 c. feet per hour) and is in other respects advantageously situated for the purpose. Too much time was necessarily consumed on the canal line to admit of a particular examination of this river during last fall, but the information communicated by the engineer in his report and such observations as the Commissioners have been able to make, convince them of the practicability of the plan of using the Calamic as a feeder." (Can. Com. Rep., 1900, p. 78.)

"When we reflect that the cost of constructing the first eighteen and a half miles of the canal, will not, on this plan exceed $160,000 and that on the other it will amount to more than a million and a half, the reason in favor of using the waters of the Calamic will appear too obvious to require comment. The report of the engineer is referred to for more satisfactory information on this subject." (Can. Com. Rep., 1900, p. 78.)

RAILROAD VS. CANAL.

Act of 1831, Section 2.

6381 "It shall be the duty of the superintending commissioner, to cause the engineer employed by him, to ascertain as early in the spring as the weather will permit, whether the Calamic will be a sufficient feeder for the part of the canal between Chicago and Des Plaines river, "or whether the construction of a railroad is not preferable, or will be of more public utility than a canal." And if the commissioners shall seem satisfied of sufficiency of said river, and that a canal will be of more

public utility than a railroad, it shall be their duty to commence the excavations without delay. And if they should be of opinion that it would not, all further proceedings in relation to said canal and sales of land, shall be deferred until the next meeting of the Legislature." (Can. Com. Rep., 1900, p. 83.)

FROM REPORT OF ACTING COMMISSIONER DUNN.

6382 "The engineer is of the opinion that 'the facts elicited by the examination of the route of the proposed canal are unfavorable to the practicability of its safe and
6382a economical construction.' But represents that the route examined for a railway was found extremely favorable for the adoption of that sort of improvement. These statements of the engineer but confirm a conviction that I had for some time labored under." (Can. Com. Rep., 1900, pp. 85-86.)

FROM REPORT OF CANAL COMMISSIONERS.

RAILROAD VS. CANAL.

"They regret that it is not in their power to make a report in detail. This cannot be looked for from them until they have all the means which the subject is susceptible of furnishing, necessary to satisfy the expectations of the public. They deem it a sufficient reason to say that the engineer in their employment has been constantly and indefatigably engaged in the execution of the work for nearly seven months past, notwithstanding the season were exceedingly unpropitious. But their convictions justify them in stating that the work has been executed with great pains and fidelity and which they think, merits, in reference to its accuracy, the confidence of the country." (Can. Com. Rep., 1900, p. 86.)

"It would be premature in the undersigned to say unqualifiedly that either one of the improvements contemplated should be preferred to the other, without the aid they would derive from the estimates of the cost. But from the convictions that at present influence them, they cannot hesitate to say that a railway on the route

referred to, is decidedly preferable to a canal." (Can. Com. Rep., 1900, p. 86.)

"The maps, profiles and estimates of a railway and canal will be made out by Mr. Bucklin without delay, but which will necessarily, however, occupy some time to enable him to accomplish this part of his labor. But we state it as our present convictions, undecided by his report, that unless there are some facts hereafter presented which we do not now anticipate) we should feel it our duty to recommend to the Legislature the adoption of a railway in preference to a canal." (Can. Com. Rep., 1900, p. 86.)

WATER SUPPLY.

6383a FROM REPORT OF J. M. BUCKLIN, ENGINEER, JAN. 1, 1833.

"The discharge of the Calamic river in the fall of 1830 a season of extreme drouth, amounted to 320,000 cubic feet per hour, which may be safely relied upon as its minimum discharge. This quantity was considered sufficient for the upper portion of the canal, but by the late survey the length of canal to be supplied from the summit until relieved by the river Du Page proving to be much greater than was anticipated, an additional supply of 102,400 cubic feet per hour will be required for its consumption. The river Des Plaines in most seasons would alone make up the deficiency, but in the fall of 1830 its discharge was at one period reduced to 60,000 feet per hour. Relying upon its contributing this quantity of water in the dryest seasons, there will still remain a deficiency of 42,400 cubic feet for which there is no resource but the establishment of an artificial reservoir on the Summit Level. The Ausoganashkee swamp presents great advantages for this purpose, as it receives the drainage of the country to a great extent, and is susceptible at a comparatively small expense, of being rendered more secure from breaches and other casualties than most works of a similar description. It will form an area of 1,194 acres, capable of being filled to the average depth of ten feet and of containing a body of water more than adequate after the deduction of a large allowance for evaporation and leakage to all demands

made upon by the above mentioned deficiency. (Can. Com. Rep., 1900, p. 88.)

"Discharge of the Des Plaines river per hour in cubic feet 60,000."

6384 "The entire length of the canal being 92.75 miles there will then remain 56.25 miles to be supplied from other sources. Forty-one miles of this distance will devolve upon the river Du Page and the remainder upon Fox river. The river Du Page or Tokoquenonc empties into the river Des Plaines 3.67 miles above its junction with the Kankakee. By an imperfect and hasty measurement of the Du Page in the fall of 1830, its minimum discharge was estimated at 415,000 cubic feet per hour, the succeeding summer and fall being remarkably wet did not afford an opportunity of ascertaining its discharge at a low stage, but it is obvious to the observer of both streams, that its discharge must, at all times, be greater than that of the Calamic. We may rely upon its capacity to furnish the same quantity of water, that is, 320,000 cubic feet per hour, from which deduct 246,000 cubic feet, the quantity required for evaporation and leakage in forty-one miles of canal at 6,000 cubic feet per hour for every mile, and there will remain a surplus of 74,000 cubic feet per hour, which being insufficient for the consumption of the remaining 15.25 miles, the waters of Fox river can be brought into requisition to supply the deficiency. As far as the results of experience can be applied in calculating the quantity of water expended by a canal located on ground of ordinary permeability, an ample supply of water is thus provided for the whole route. Nevertheless it must be acknowledged that in the upper levels where from the scarcity of water it is most important to restrict the loss of water within the usual limits, the canal passes through so rocky and porous a section of country that it is impossible to anticipate what may be the extent of the leakage or how far the precautions ordinarily adopted may succeed in enabling the canal to retain the water." (Can. Com. Rep., 1900, p. 89.)

RAILWAY AND CANAL IN DES PLAINES VALLEY.

"Resuming the survey of 1830, at the Ausoganashkee swamp the line of the late survey continues in the south-

east valley of the river Des Plaines until within half a mile of Hickory Creek, it then crosses the river and encroaching upon its bed for a short distance to avoid rock excavation, is conducted by means of a narrow valley to Mount Joliet, where it falls in with the line of railway and terminates the second division, a distance of 19.75 miles. The rock excavation which forms a large item in the cost of this division, is occasioned by the gradual rise of the rock on the summit level, and the difficulty in procuring earth from embankment on the lower levels, which in some instances renders a depression of the level and the consequent excavation of the rock more advantageous than a continuation of the level and the
6384a substitution of embankment, although under the circumstances it would be preferable. The broad valley of this singular stream in places where it has much descent seems in its whole extent (far beyond the present rise of its waters) to have been swept bare of everything that was not sufficiently ponderous to resist the effects of a violent current. In these situations with the exception of occasional mounds of gravel, materials for embankment cannot be found within a distance that would justify their use except in a case of absolute necessity. Besides the expense accruing from these causes, the cost of keeping this part of the canal in repair after it is finished, must be necessarily great on account of the immense deposits of earth and the breaches to which it will be annually subjected by the numerous small streams which intersect the route and must be received into the canal as they cannot be passed under it or disposed of in any other way. The whole line is more or less exposed to this defect, but it is of more frequent occurrence in this division than in any other part of it. It is here that the rocky district of the country before alluded to, as exciting so much apprehension respecting its probable effect in exhausting the supply of water is situated. (Can. Com. Rep., 1900, p. 90.)

"The third division which is included between Mount Joliet and the river Au Sable (a distance of 15.234 miles) affords a better location than the preceding. With the valley of the Des Plaines it pursues on very favorable ground, a southerly course from Mount Joliet to the river Du Page which it crosses some distance above its mouth, receiving a feeder from it on the north side. Beyond

this point, the bluffs, just above the confluence of the Kankakee and Des Plaines rivers oppose serious obstacles to the construction of an economical and permanent work. On this section of the division the level is unavoidably too low to admit of the passage of many of the small streams under the canal by which means and the drainage from the hills, it will be subject to the same inconveniences and danger in wet seasons to which the division above is exposed. The soil also from being mixed with sand adheres together very slightly and when saturated with water has a great tendency to slip over where the inclination of the hill is moderate. Considerable embarrassment to the navigation of the canal may be expected from this cause besides the expense of repairs." (Can. Com. Rep., 1900, p. 90.)

DEEP CUT PLAN

ROCK EXCAVATION

USE OF DES PLAINES.

6385 "In making a feeder of Lake Michigan, by cutting through the dividing ridge between the lake and the head waters of the Illinois river the location of the canal is the same throughout as the foregoing, it being important in both plans to choose the lowest ground for the Summit Level, the arrangement of the lower levels being governed by the same indications in each. In the survey of 1830 of the upper part of the route, assuming the bottom of the canal at the head of the Chicago river, to be four and one-half feet below the level of the lake, no rock excavation is encountered until the line strikes the river Des Plaines, where it was ascertained by the boring to average about ten feet and the earth excavation about six feet in depth throughout the remaining distance of nine miles. By the late survey, beyond the Ausoganashkee Swamp, the rock excavation was found to increase in depth for several miles, on account of the greater elevations of the rock which I have before had occasion to advert to in describing the location of the second division. The divisions of the route upon this plan, are the same as in the former, of which first and second division it will be observed by referring to the

estimates, are liable to any increase in the cost of construction, arising from the difference of plan, yet this increase amounts to upwards of two millions and a half, a fact that may be thought sufficient of itself to put the execution of the work on this plan entirely out of the question. Still it may not be superfluous to remark that although in the estimate of the probable cost of the work, a liberal place is allowed for the rock excavation, the most important item; besides a sum amply sufficient to cover the ordinary contingent expenses, yet it is hardly possible to anticipate the limits of the expenditure when we consider that the bulk of the rock excavation lies below the rocky bed of the river Des Plaines and the interruption that the work will consequently be liable to form the water of the river finding its way through the numerous fissures of the rock into the canal." (Can. Com. Rep., 1900, p. 91.)

DES PLAINES RIVER—WHY NOT USED FOR CANAL—RAILROAD PREFERRED.

"It has been also proposed to effect a water communication between the Lake and the Illinois river by means of dams and locks in the river Des Plaines, forming a still water navigation, knowing the minimum discharge of this river, the impracticability of the scheme is so evident that the subject is here noticed more as a mat-
6385a ter of form, than with any expectation of rendering it clearer. It will be recollected that the quantity of water provided for the passage of 96 boats over the Summit Level every 24 hours in the canal, is 86,400 cubic feet per hour, that is one lock chamber full of water every 15 minutes, ascending and descending." (Can. Com. Rep., 1900, p. 92.)

"The minimum discharge of the river Des Plaines, is only 60,000 cubic feet per hour. Of course, it is not competent to supply even the lockage (which on this plan cannot be less than that required for the canal) without taking into consideration the loss by evaporation and leakage, which would alone consume at least seven times the quantity of water discharged by the river Des Plaines at its lowest stage." (Can. Com. Rep., 1900, p. 92.)

ANY WATER COMMUNICATION WHATEVER THOUGHT IMPRACTIBABLE.

"In the rocky and cavernous district of country to which the location of the great part of the route of the canal is confined, there are too many difficulties to be reasonably apprehended in carrying it into successful operation, to justify the establishment of a water communication on any route or plan whatever, while however, so many obstacles are opposed to the construction of a canal, the examination of the route for a railway was very successful in developing its great advantages for the adoption of that species of improvement. The line of the canal commencing at the Chicago river and occupying the south bank of the river Des Plaines, being of very exceptional character for a railway, and the inclination of the grades of the latter admitting of greater latitude in its location, the route for a railroad was commenced at the junction of the north and south forks of the Chicago river in the town of Chicago on Lake Michigan, and from thence run in a sight line through a level open prairie, north of the Portage Lake to the upper ford of the river Des Plaines, commonly called Laughton's ford, a distance of ten miles from Chicago; it crosses the river at this point which is advantageously situated for that purpose, and pursues the northwest valley of the river Des Plaines until it forms a junction with the line run for a canal, a short distance below a remarkable natural mound called Mound Joliet, 38.258 miles from Chicago. This distance includes the 1st and 2nd divisions of the line of the railway, the remaining part of the route (57.742 miles) corresponds in the limits of its division with those of the canal, although the location is not entirely the same, the inclinations of the railway frequently allowing a better selection of ground than that to which the levels of the canal are confined." (Can. Com. Rep., 1900, p. 92.)

"The graduation of the first ten miles through the Chicago prairie, generally conforms to the surface of the ground which varies in its inclination from 2 to 13 feet to the mile. The want of stone and timber which

exists on this part of the line can in a great measure be obviated by commencing the construction of the railway at the river Des Plaines, where these materials can be obtained in abundance, stone or a very good quality. The estimates of the probable cost of this section of the 1st division are founded upon the adoption of this expedient for lessening the cost of the transportation of materials. Beyond the river Des Plaines, the 1st division extends to Flag Creek which empties into it 9.618 miles below the upper ford. The ground upon which this part of the line is located, is generally very level, the graduation which does not require much excavation or embankment, not exceeding 13 feet to the mile. Curves are, however, frequent, but not very abrupt, the minimum radius of curvature being 955 feet. Materials are found in sufficient quantity in the vicinity of the line." (Can. Com. Rep., p. 92.)

"Crossing the above mentioned creek obliquely about a mile and a half above its mouth, the line of the railway descends the valley of the creek to that of the river Des Plaines, where it continues its course until it strikes a succession of swamps, occupying the whole breadth of the valley of the river and running nearly to the top of the bluff. They are about two miles in extent, but from the favorable circumstance of their being generally shallow with a rock foundation, no great difficulty of expense is anticipated in passing them by an embankment. The line as first run, in order to avoid them as much as possible and to obtain firm ground, ascends the side of the bluff which involves the necessity of a graduation of 24 and 31 feet to the mile, but as the survey of the entire line has developed the fact that 20 feet to the mile may be considered the maximum rate of graduation on every other part of the route it becomes necessary even at a great increase of cost to equalize the graduation at this point. For whatever propelling power is used on the road it will, of course, be calculated to overcome the greatest resistance to be met with on any part of the road, consequently it is of great importance to avoid the necessity of providing a propelling power to overcome an ascent of 31 feet to the mile at one point only, while on no other part of the route a greater power is required

than that necessary for an ascent of 20 feet to the mile." (Can. Com. Rep., p. 93.)

6387 "In reviewing the capabilities of the country between Chicago and the foot of the rapids of the Illinois river for the construction of a canal or railroad, it would seem (laying aside the great difference of expense) that the obstacles opposed by nature to the foundation of a good canal on any route or plan whatever, are such that nothing could justify the undertaking, but the fact of its being the only means of attaining the accomplishment of so important an object as the improvement of the communication between the above mentioned points. For this reason the unparalleled advantages presented on the route of the railway for the construction of a very perfect and prominent work, are invested with additional value in inviting the adoption of an alternative, the ultimate success of which is warranted by experience in the successful operation of many similar works both in Europe and the United States, none of which can compete with it in economy of construction or perfection when finished." (Can. Com. Rep., 1900, p. 95.)

Effects of the Railroad Scheme

Canal Commissioners Abolished

Memorial to Congress by State Legislature

6391a An Act to Abolish the Office of Canal Commissioners. Approved March 1, 1833.

"The General Assembly of the State of Illinois in session December 20th, 1832, adopted the following memorial:

"To the Honorable, the Senate and House of Representatives of the United States in Congress Assembled:

"The memorial of the General Assembly of the State of Illinois, respectfully represents, that by 'An act entitled an act to grant a quantity of land to the State of Illinois for the purpose of aiding in opening a canal to connect the waters of the Illinois river with those of Lake Michigan, approved March 2d, 1827,' Congress

has granted to this State a quantity of land, on the line of the proposed canal, to assist in the accomplishment of the work. Since the passage of this law, the State has caused the route to be surveyed, and the cost of the work to be estimated, from which it appears that the expense will greatly exceed the amount originally contemplated; that a railroad or turn-pike will be, upon the whole, more useful and less expensive, and can be accomplished in much less time. Nevertheless, the act of Congress limits the donation to the purpose of making a canal so as to restrict the Legislature from making any other application of it. Your memorialists therefore pray your honorable body to pass an act enabling this State to apply this donation to a turnpike, railroad or canal, as either of them shall be found to be most advantageous or convenient." (Can. Com. Rep., 1900, p. 104.)

From Act of Congress Approved March 2, 1833.

"Provided, That if a railroad is made in place of a
6392 canal, the State of Illinois shall be subject to the same duties and obligations, and the government of the United States shall be entitled to, and have the same privileges on said railroad, which they would have had through the canal, if it had been opened." (Can. Com. Rep., 1900, p. 105.)

"Approved March 2, 1833."

"In January, 1835, the General Assembly of Illinois passed an act entitled 'An act for the construction of the Illinois and Michigan Canal.' Under this act Governor Joseph Duncan nominated Edward Coles, president; Gurdon S. Hubbard, Joel Manning, William Linn, and William B. Archer, commissioners, who were duly confirmed as the Board of Canal Commissioners. This act, however, proved defective in so many particulars that nothing was accomplished by this commission." (Can. Com. Rep., 1900, p. 105.)

"From 1831 to 1835 a strong effort was made to secure the construction of a railroad instead of a canal. This effort, however, while it was advocated by many of the leading men of the State, met with little encourage-

ment from the people." (Can. Com. Rep., 1900, p. 105.)

"The Congressional acts of 1827 and 1833 extended the time limit for commencing the canal to 1837 and for its completion to 1852, it being apparent at this time that prompt measures must be taken for the commencement of the canal or the rights under the act of 1822 and 1827 be lost and the land grant of 1827 thereby revert to the general government; that the Governor of Illinois by proclamation convened the General Assembly in special session December 7, 1835.

A CONTINUOUS CANAL AS AGAINST SHORT CANALS AND RIVER IMPROVEMENT.

6394 "Chicago, June 23, 1836.

To the Honorable, The Canal Commissioners of the State of Illinois.

Gentlemen:—

At a meeting of the citizens of the town of Ottawa the undersigned were appointed a committee to address a note to your board to ascertain whether it is contemplated by you to cause a survey of the Illinois river or any part of it to be made, in order that estimates may be made with a view to its ultimate improvement for slack water navigation." (Can. Com. Rep., 1900, p. 109.)

PRESIDENT TO CITIZENS OF OTTAWA.

Canal Office, Chicago, July 11, 1836.

Committee of the Citizens of Ottawa.

Gentlemen:—

Your communication of the 23d ult., was laid before the board of canal commissioners at their first full session, after the receipt of it, and I hasten to apprise you of the result. You inquire 'whether it is contemplated by the board to cause a survey of the Illinois river, or any part of it, to be made with a view of its ultimate improvement for slack water navigation,' and we presume that you allude more especially to that part of the river lying between Ottawa and the western boundary of the canal lands."

"By reference to the 44th section of the act for the construction of the Illinois and Michigan canal approved the 9th of January, 1836, it will be seen that the Legislature have ordered the canal to terminate "at or near the mouth of the Little Vermillion river, in Lasalle country, and on lands owned by the State."

"When this act was passed, the question was not new, whether a continuation of the canal or an improvement of the river below Ottawa by lock and dam was most advantageous to the general interest. The Legislature had accumulated a large fund of information in order to judge of the comparative advantages and disadvantages of each plan, both in relation to the safety and stability of navigation, and to the increased revenue derivable from State property by terminating the canal as low down the river as was contemplated in the grant of lands from the Government of the United States. Nor can it be doubted that the tenor of that grant had some influence on the decision." (Can. Com. Rep., 1900, p. 109.)

6394a "The commissioners shall have power, says the law, to cause an engineer to examine the Illinois River, from the mouth of Fox river, down to the head of steamboat navigation; and if, in their opinion the navigation of the Illinois can be improved by locks and dams, or otherwise, so as to secure its navigation as far upward as the mouth of Fox river, with as little expense and as much utility as cannalling from the Fox river to the Little Vermillion or the foot of the rapids, they shall have power to terminate said canal at mouth of Fox river." In 1833, the same engineer reported that a comparatively good route could be obtained for the continuation of the canal from the mouth of Fox river to a place now known as Utica and that great difficulty and expense would attend a further progress. In examining the rapids of the Illinois below the mouth of Fox river he says,

"It was ascertained that the establishment of a still water navigation was the most certain and effectual method of improving them." But in his zeal to demonstrate the superiority of a railroad over either mode of water communication, he admitted a steamboat canal around the rapids, "to be of too precarious a nature to be recommended with any degree of confidence in

its permanency and usefulness." He estimated an independent canal between Fox river and Utica at $580,000; and a still water navigation of the same distance at $200,000; and it is worthy of remark that notwithstanding this great disparity of cost necessarily enhanced by the difficult country between Utica and the mouth of the Little Vermillion, the Legislature have thought proper to repeal the eighth section, just cited, and to adhere to the first plan. In fact, they have presented the termini in language not to be misunderstood, while they have given great latitude and almost everything else connected with the subject, hence the commissioners deem themselves unauthorized at this time to cause a survey of the rapids of the Illinois river" "with a view of their ultimate improvement for slack water navigation"; nor would they be justified to any premeditated suspension of that particular line for the sole purpose of bringing the matter again before the Legislature, unless the engineers (who have recently ascertained that a safe canal and suitable termination are entirely practicable) should prove by their estimates that the cost will so far exceed any previous calculations as to render it prudent, on the part of the commissioners, to report that fact to the Governor and pause for additional legislation." (Can. Com. Rep., 1900, p. 110.)

6395 "Taking this view of the subject, the commissioners can make no pledge " 'To cause any part of the river to be surveyed, with a view of slack water navigation,' except in the contingency before mentioned or, in the further one, of the Fox river feeder, and the division along the Rapids not being not under contract during the present season. Should either of those events take place, an accurate survey from Ottawa down will be made this fall when the water is low, and plans and estimates submitted to the Legislature." (Can. Com. Rep., 1900, p. 111.)

"In coming to this conclusion, the board of commissioners are influenced, in the first case, by the consideration that if a continuous canal should be shown to be too costly for its benefits, a still water navigation will be the only alternative; and in the second case, by their anxiety to do everything consistent with their duty, to promote the interest and gratify the wishes of the enterprising citizens of so important a town as Ottawa. A

point in which the State is deeply concerned and one which, in no event, can fail to arrive at immense consequence." (Can. Com. Rep., 1900, p. 111.)

"With great respect, gentlemen, I remain,

Your obt. servt.

W. F. THORNTON,

President Board Comms. I. and M. Canal.

Messrs:

Benj. H. Moore
James Day
Loring DeLano
Benj. Harris
Bartley Denison
Wm. E. Armstrong
Geo. H. Norris
David Lith
Henry Green"

(Can. Com. Rep., 1900, p. 111.)

FROM ANNUAL REPORT FOR 1836.

6396 "In the very threshold of their administration, the board were met by appalling difficulties, involving the highest official responsibility, and the most vital interests of the State. They soon became convinced that the magnitude of the undertaking had been miscomprehended both by the Legislature and the people. The largest estimate that had been previously made was about four millions of dollars; and without regarding the enlargement of the plan or the increased value of the means of execution, it was confidently asserted by many members of the Legislature and other citizens, whose opinions were entitled to weight, that even that estimate was far beyond the truth."

"The commissioners had just begun their inquiries when they became satisfied that the four millions would be wholly inadequate; and before they had determined on any definite location, they saw that if the spirit of the law was adhered to, double that sum would be required. The seventeenth section of the act says that "the canal shall be supplied with water from Lake Michigan, and such other sources as the commissioners may think proper." In other words, Lake Michigan must be a feeder; and consequently the water of the lake must be

carried into the valley of the Des Plaines by a through cut, chiefly in stone, of eighteen feet deep, on an average and nearly thirty miles long. It was upon this plan that Mr. Bucklin made his four million estimate; but his canal was to be forty feet wide at the surface, twenty-eight feet base, and four feet deep; while the present law requires "not less than forty-five feet of water surface, thirty feet base, and a sufficient depth to insure a navigation of four feet." It is to be constructed, too, in the manner best calculated to promote the permanent interest of the country, and a discretionary reservation is authorized on each margin with a view to future enlargement." (Can. Com. Rep., 1900, p. 113.)

"To the difficulty which this view of the subject presented, another was added which exercised a strong influence on the movements of the board. It was at first believed by men of experience, and countenanced by the engineer, that steam power would have been freely resorted to in order to divest the Summit level works from the water which might probably flow in through the fissures of the rocks; and that the necessity of such a resort would not only increase the expense of excavation, but deter contractors from making acceptable proposals. Under the circumstances, the board came to
6396a the conclusion that if it were practicable to obtain ample feeders from other sources than the lake, they would direct their operations for the present year to some other division of the work and call the attention of the Legislature to a change of plan. The Calumet and the Des Plaines having been ascertained to be insufficient, the upper region of the Fox river, as the only remaining chance, was ordered to be examined; but after a brief, yet convincing, investigation, the project was abandoned. A reference to the engineer's report will afford all the particulars of the exploration. (Can. Com. Rep., 1900, p. 114.)

"Nothing now remained but to go through the Summit level, or suspend the whole work. (Can. Com. Rep., 1900, p. 114.)

"The next question to be decided was the size of the canal. After mature deliberation the board determined to adopt the recommendation of the chief engineer, and construct it of the following dimensions, to-wit: Sixty feet wide at the top water line, thirty-six feet wide at

the bottom and six feet deep. The fluctuation, or irregular tides, in the lake, occasioned by the action of high winds rendered the depth agreed upon indispensably necessary to insure a navigation of at least four feet, and the commissioners were decidedly and unanimously of the opinion that the adopted width was that "best-calculated to promote the permanent interest of the country."

* * * * *

"There is no avoiding the stupendous cost through the Summit Level. Water must be drawn from Lake Michigan and that water will be of great value, as well for the improvement of the river navigation as for hydraulic purposes. The greater size of the canal will facilitate the passage of canal boats, overcome their burden and cheapen freights. It must have, too, a beneficial effect upon the prices of land and town lots owned by the State; such an effect, in fact, was clearly perceptible at the recent sales in Chicago, and will doubtless be felt at every other point." (Can. Com. Rep., 1900, p. 114.)

THE MACADAM AND PLANK ROAD ACROSS THE SWAMP FROM JOLIET TO CHICAGO.

6398a "But the heaviest item in the contingent account is the Saganashkee road, amounting to $..... At the very commencement of operations it became evident to the board, that, owing to the total absence of a road along the route of the canal, which passes, for several miles, through marshy wet prairie, and heavy timber, some steps must be taken to secure free access to the line, at all seasons of the year. Without it, hardships would at times, be much retarded, and contractors would naturally seek to indemnify themselves by increased prices. At the instance of the acting commissioner he was therefore authorized to make such improvements as, in his opinion, were indispensably necessary. It was believed at that time, that five or six thousand dollars would accomplish the object; but the plan was afterwards extended to its present condition and cost upon the individual responsibility of the acting commissioner. He was confident that a proper discharge of his duty, as the immediate superintendent of the canal, warranted

the expenditures; and the other members were unwilling to withhold the means which the nineteenth section of the law would seem to sanction. The board is unanimous, however, in opinion, that the State will eventually be more than reimbursed by the advantages derivable from so useful a highway." (Can. Com. Rep., 1900, p. 118.)

FROM REPORT OF CHIEF ENGINEER WM. GOODING, Dec., 1836, EFFECT OF CANAL ON THE RESERVOIRS FEEDING THE DES PLAINES.

6399 "Two lines of levels were run across the country lying between Chicago and the Des Plaines river, near the mouth of Portage or Mud Lake, the one commencing near the mouth of a broad slough, on the north fork of the south branch of Chicago river, at the point where the former canal surveys were commenced, the other on the north branch of said river and a half mile above the point or the junction of the north and south branches." (Can. Com. Rep., 1900, p. 119.)

"The former line or the route of the old surveys was found to be far the most favorable, the distance for which the through cut would have to be made, and the depth of cutting being much less. This line passes over the ground but little elevated above the surface of Portage lake at an ordinary stage of water, and which is mostly inundated during the floods of the Des Plaines, the waters of which, it is well known, frequently flows across this low country into the south branch of Chicago river. A particular examination was also made of Portage lake and of the Des Plaines river with the view of occupying portions of each with the canal should the result prove favorable. But it was found that no saving could be effected by such an arrangement. Portage lake is a succession of ponds on the same level, connected with each other and with the Des Plaines river, and extending about six miles toward Chicago river, nearly in the direction of the canal line. The surface of the water at an ordinary stage is 10½ feet above Lake Michigan and the mud in the bottom is generally found 5 to 6 feet above Lake Michigan or from 11 to 12 feet above bottom of canal. To excavate the canal to the requisite depth

through these ponds and the marshes on their borders, would be attended with great difficulty and a cost far exceeding that of making the through cut along the borders of the marshes on ground more favorable."

"The examination of the Des Plaines river resulted no less unfavorable than that of Portage lake. The bed of this stream for 13½ miles below the point where the canal line enters the valley, except in a few places and for short distances only, is from 8 to 12 feet above bottom of canal, and nothing whatever could be gained by occupying any portion of the channel, as the difficulty of disposing of or keeping out the waters of the river to make the necessary excavation would more than balance the diminution of the quantity to be excavated by such a location." (Can. Com. Rep., 1900, p. 119.)

6399a "From the examinations made it soon became apparent that the Summit division was likely to prove far more expensive than any former estimate had made it, and it was believed that if a permanent and adequate supply of water could be provided without cutting down the Summit so as to introduce the waters of Lake Michigan, a change in the existing law should be recommended to the legislature of this State at its next session." (Can. Com. Rep., 1900, p. 120.)

SUMMIT DIVISION.

6400 "This division extends from the north fork of the south branch of Chicago creek to the first lock and is also made to include the creek or river section of five miles and 44 58-100 chains in length. The length of the river section is computed from the pier at the mouth of the river to the commencement of the through cut at "the mouth of the broad slough" on the north fork of the south branch on the line as located for the June letting. Towing path, however, is only estimated from the point on the junction of the north and south branches, and will be constructed on the south side of the south branch four miles and sixty-four chains, where it will cross by a towing path bridge at the mouth of the north fork, up which it will continue to the mouth of the slough before mentioned. Little expense will be required except for the towing path until the south branch is crossed, when it

will become necessary to cut off some points, and in some places to deepen the channel between the mouth of the north fork and the commencement of the through cut." (Can. Com. Rep., 1900, p. 121.)

"But the law requires that the canal should commence on canal land, and if the branch thus improved be not considered canal, it will be necessary to continue the through cut to the south branch, increasing the length of independent canal forty-eight chains or otherwise the law should be so changed as to permit the most judicious location practicable, which is believed to be on the route first described. A survey has, however, been made in pursuance of instructions received, from a point on the south branch 4½ chains above the crossing proposed at the mouth of the north fork to a point near the Des Plaines river where the line first run, and upon which the estimates were made for the June letting, is intersected. Both these lines from the point of starting to the intersection, are straight and occupy similar ground. Upon the first route to the straight line is 7½ miles in length, and upon the other route eight miles and eight chains." (Can. Com. Rep., 1900, p. 121.)

"The prairie over which both lines pass is very level, and extremely wet except in times of severe drought. The cutting is generally from seventeen to nineteen feet, through a stiff blue clay."

"Below the intersection of the tow lines the canal route is down the valley of the Des Plaines. This river for thirteen or fourteen miles has very little descent, the current at low water being scarcely perceptible, and the land so low along its borders as to be overflowed by every rise of water."

"After the line enters the valley the direction is changed by a gentle curve and another straight line obtained of three miles and fifty chains in length. Several other long straight lines are obtained on this division and the curves may all be gentle and uniform."

"The depth of cutting continues about the same down the valley to Brewer's ford as across the wet prairie from Chicago river to the Des Plaines, but the canal will be much more expensive as the excavation is principally rock. The depth of earth on the rock above the mouth of the Saganaskee swamp was found to be much less than was anticipated and less than was represented

in Mr. Bucklin's report but he may have found a more favorable line than that upon which our examinations have been made."

"A different section of canal is presented in crossing the mouth of the Saganskee swamp where there is earth to a depth of five or six feet the most of which is a semi-fluid resting on rock. The cutting is here about seventeen feet." (Can. Com. Rep., 1900, p. 121.)

"From this point to the first lock the rock is generally near the surface and a definite location has been made which it is believed is susceptible of little improvement. The level runs out a short distance after crossing Big Run which is about 1¼ miles above the first lock and in the bed of which the cutting is two feet. This must, of course, be taken into the canal. (Can. Com. Rep., 1900, p. 121.)

6400a "No estimate has been made for cutting down the towing path as the whole drainage of a considerable extent of country on the southeast side of the canal must be received into it, and it was believed that this would sometime be nearly filled so that a towing path below the surface would be useless." (Can. Com. Rep., 1900, p. 122.)

THE DUPAGE-DRESDEN SECTION.

NATURE OF THE CONSTRUCTION.

ENGINEER GOODING'S SUGGESTION THAT THE RIVER BE USED.

6401a "About two miles below the crossing of the Du Page a very difficult and expensive portion of the line commences and extends nearly to Dresden, below the mouth of the Kankakee river. The bluffs which are from 100 to 150 feet in height approach the river so as to be washed by it at their base, and the towing path bank which will be partly or wholly built in the river at the base of the bluffs will require slope wall to protect it against abrasion from the flood waters of the river, for an aggregate distance of 2 miles and 50 chains." (Can. Com. Rep., 1900, p. 124.)

"The most expensive portion of this difficult section commences a short distance above the mouth of the Kan-

kakee river, and continues to the termination of the bluffs. The base of the towing path will be wholly in the river, and the embankment must be formed by earth taken either from the top of the bluff or from the opposite side of the bluff, for the excavation of any portion of the prison of canal in the bluff would increase its tendency to slip and consequently endanger the canal." (Can. Com. Rep., 1900, p. 124.)

"Heavy protection wall will here be required to resist the force of the ice floods of the Kankakee, but it is believed that the estimate of cost presented is sufficient to construct a canal as permanent as it can well be made along clay bluffs which seem so much inclined to slip."

"Another mode of passing the bluffs may be worthy of examination before a final location is made of this part of the line between Dresden and Marseilles."

"A dam may be built at the foot of the bluffs and a towing path constructed along their base so as to pass this difficult portion of the line by slack water at much less expense than the present estimate of an independent canal, and would, undoubtedly, be quite as secure an improvement. By raising the water 15 feet (and a dam of this height can be rendered perfectly secure for there is a good rock foundation) the line would be thrown 10½ feet lower than the survey made to lock No. 8, of 8 feet lift between the Aux Sable river and Nettle creek, and 2½ feet lower than the line surveyed from this lock to locks Nos. 9 and 10, short distance above Marseilles. This would involve the necessity of a change in the plan of crossing the Aux Sable, an aqueduct having been estimated and a dam being required, if the plan suggested hereafter be adopted, and the river would be crossed considerably further down. The line below Dresden would probably be rendered more expensive than it is shown by the present estimate, and some damage would be sustained by the overflowing of land about the mouth of the Du Page, but how extensive this damage would be, how much expense would be saved at the bluffs, and how much additional cost encountered below, are all matters of future investigation." (Can. Com. Rep., 1900, p. 124.)

6402a LOCATION OF WESTERN TERMINAL.

"The termination of the canal is made on the corner of section 21 in township 33, N. R. 1 east of the 3d principal meridian. (Can. Com. Rep., 1900, p. 126.)

HOW ENGINEER GOODING'S SUGGESTION WAS ACTED ON.
6406 SHALLOW CUT HIGH LEVEL WITH RIVER FEEDERS.

"This communication and the reports of the canal Commissioners and their engineer were referred to the committee on canal and canal lands, who on the 15th day of February, 1837, submitted the following report:"

"The committee on canal and canal lands, to which was referred the message of the Governor transmitting the annual report of the canal Commissioners; also a report of the committee on roads and canals of the House of Representatives, have had the various matters submitted to them under consideration, and submit the following as the result of their deliberations."

"From the examinations of those documents it will be seen, that the questions presented for consideration naturally bring before the committee inquiries touching the whole course of many years' legislation upon the subject of the canal. Questions which ought long since to have been investigated and definitely settled, and which it must be presumed have been fully considered and decided upon by previous legislative bodies, are again presented with the view of an almost entire change and total reversion of all previous legislative action. The committee have not thought proper to assume the correctness of the policy and measures heretofore adopted without investigating the facts and reasons urged in favor of the change. In proceeding to the investigation of this subject, the committee will endeavor to divest themselves of all prejudice in favor of preconceived opinions, growing out of previous action in their legislative capacity upon the same subject. It is deemed proper, however, to state that in the opinion of the committee it is incumbent upon those urging and proposing changes of action upon a subject of such vast importance to show that such changes are practicable, and are consistent with the public faith, and the character and dig-

nity of the State. The first change proposed by the committee of the House is upon the Summit division of the canal line, thirty-two miles in extent." (Can. Com. Rep., 1900, p. 133.)

(1) Shallow Cut High Level With River Feeders.

"The proposition is to adopt the high level, as run by Mr. Bucklin, ten feet above the surface of Lake Michigan using the Calamic and Desplaines rivers for feeders."

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(2) Improvement of Illinois River to Head of Lake Joliet.

"The second is, to substitute the improvement of the Illinois river, from the foot of the rapids to the head of Lake Joliet, for steam navigation by means of locks and dams." (Can. Com. Rep., 1900, p. 133.)

Discussion of High Level Feeder Proposition.

"The reasons urged by the committee of the House in favor of the first changes proposed are: First, the large sum which the canal will cost upon the present plan; secondly, the length of time required for its completion; third, the difficulties of construction; and fourth, that a better plan can be adopted."

"All of these reasons except the last strike at the root of the project, and have been often urged against the policy of engaging in a work of such magnitude, and it is to be regretted that the committee did not turn its attention more particularly to the last reason, because, unless it can be made to appear that the change proposed by the committee is practicable, the arguments with reference to cost, to time and to difficulties of construction, must have their full weight against proceeding further with the canal." (Can. Com. Rep., 1900, p. 133.)

"If the fact can be established, that a canal much less expensive, equally ample, and securing all the advantages and acommodations which could be obtained from the deep cutting, can be constructed upon the plan pro-
6406a posed by the committee of the House, there will be no ground or point left for disputation. No citizen of Illi-

nois would be found contending against the adoption of such a plan. If, on the contrary, the plan proposed is impracticable, no one desiring the completion of the canal would be willing to abandon the present plan for such reasons as are urged against it." (Can. Com. Rep., 1900, p. 134.)

EFFECT OF LOCAL INTERESTS.

"It is a source of deep regret that local and sectional interests of recent origin, should be made to operate upon a question of such vital importance to the character, dignity and faith of the State. A spirit of rivalry is perhaps inseparable from the existence of towns and villages, whose inhabitants imagine that the prosperity of one would be the downfall of the others. Yet whenever such a spirit shall attempt to exert an influence upon legislative action, upon measures involving both State and National policy, it ought to be met by the representatives of the people with the requisite firmness to destroy its influence, and put to shame those who have attempted to use it." (Can. Com. Rep., 1900, p. 134.)

SENATE COMMITTEE'S SUMMARY OF FORMER HISTORY (in 1837).

"In the examination of the questions now under consideration, the committee will first review the legislative action bearing upon this point. In 1823 an act was passed organizing a board of commissioners to consider, devise and adopt the measures requisite to effect the communication by canal and locks between the navigable waters of the Illinois river and Lake Michigan. Five distinguished citizens of the State were constituted the board. An examination and survey were executed under their direction by Messrs. Paul and Post, both of whom stood high as men of science, talents and integrity." (Can. Com. Rep., 1900, p. 134.)

"In January, 1829, an act was passed by which a board of canal commissioners was organized, who were required to locate the canal to effect a navigable communication between Lake Michigan and the Illinois river. The canal to be at least 40 feet in width at the summit of the water line, 28 feet wide at the bottom,

and of sufficient depth to contain at least 4 feet of water; and to be furnished with such locks, aqueducts and dams, as might be required to secure a safe and convenient navigation for boats at least 75 feet long, 13½ feet wide and drawing 3 feet of water. No point is fixed in either of those acts for the termination or commencement of the canal; nor was any direction given as to the waters to be used for feeders. (Can. Com. Rep., 1900, p. 134.)

"In 1831 the last act referred to was amended, and an examination was required to be made of the Illinois river, from the mouth of Fox river down to the head of steamboat navigation, with the view of ascertaining whether the Illinois river could be improved by dams and locks, or otherwise, so as to secure its navigation as far upwards as the mouth of Fox river. An examination was also required of the Calamic river to ascertain its probable sufficiency as a feeder for that part of a canal between the Chicago and Des Plaines rivers. In 1832-3, after an ineffectual attempt to change the character of the improvement, from a canal to that of a railway, the board of canal commissioners was abolished, and all further progress of the work suspended. In 1834-5, another act was passed which provided that the canal shall not be less than 45 feet wide at the surface, 30 feet at the base and of sufficient depth to insure a navigation of at least 4 feet, to be suited for ordinary canal boat navigation, to be supplied with water from Lake Michigan and such other sources as the canal commissioners may think proper. No point of termination was fixed by this act. The act of 9th January, 1836, under which the late canal commissioners acted, provides that the canal shall commence at or near the town of Chicago, on canal lands, and shall terminate near the mouth of the Little Vermilion river, in La Salle county, and on land owned by the State. These acts of the Legislature, are referred to, in order to present before the Senate, in one view, the real points in controversy, and to show the reasons upon which the opinion is expressed, that those who propose changes in the action of the Legislature, are bound to show that such changes are practicable, and consistent with proper regard to the interest of the State. It may here be remarked, that an examination of the various laws will

show that the provisions upon the point under consideration *were not adopted by accident and without design.* The committee of the House in order to prove the practicability of the change proposed, have made calculations as to the quantity of water required to sup-
6407 ply such a canal as is proposed to be constructed, and at page 19 of their report say: 'You committee feel assured that not only a sufficient quantity of water for all the purposes of the canal can be procured from these two sources (the Calamic and Des Plaines) but that a large surplus will still remain." (Can. Com. Rep., 1900, p. 134-5.)

THE SENATE COMMITTEE LEAVE IT TO MR. BUCKLIN.

"No member of your committee having sufficient knowledge of the science of engineering to risk his own judgment upon this question in opposition to the published opinions of gentlemen of acknowledged scientific information, they are compelled to rely upon the opinions of others, in whose judgment they have confidence. Mr. Bucklin, well known to the public, having recently arrived at this place, the chairman of the committee addressed a note to him which together with the reply is as follows": (Can. Com. Rep., 1900, p. 135.)

"Vandalia, Feb. 8, 1837.

Mr. J. M. Bucklin,

SIR:—"I am engaged as chairman of a committee of the Senate, investigating the questions which have recently arisen in regard to the change in the plans in constructing the Illinois and Michigan canal, and particularly the question in relation to the abandonment of the project of supplying the canal with water from the lake, and resorting to the Calamic. Not being an engineer, nor familiar with the calculations in relation to the quantity of water required to supply a canal of the size contemplated, I take the liberty of asking your assistance, and request the favor of you to review the calculations heretofore made by yourself and others in reference to the quantity of water in the Calamic, and to state the quantity required for the canal, as at present proposed to be constructed. You will also state if there is anything peculiar in the character of the coun-

try, to justify the erecting of a canal without providing the usual quantity of water for evaporation and leakage. All the documents, except the report made by you in 1830, will be furnished if desired.

Very respectfully, your obedient servant,

WM. THOMAS,

Chairman of the Committee on Canals, etc."

Can. Com. Rep. 1900, p. 135.

The following is Mr. Bucklin's reply:

"Sir:

It will give me great pleasure to afford you any information that I may possess in relation to the interesting subject which you have before you. I can, however, do little more than recapitulate the information that has been derived from various sources respecting it."

"The river Des Plaines was gauged at Laughton's ford, by Messrs. Post and Paul, in the first survey that was ever made of the route of the Illinois and Michigan canal, and the discharge found to be 72,000 cubic feet per hour. They also gauged it at the Canal Island, eighteen miles below, when they ascertained the discharge to be 117,000 cubic feet per hour. In October, 1829, it was gauged by Dr. Howard, U. S. civil engineer, who places the discharge at 96,480 cubic feet per hour. At the same place (Laughton's ford) it was again gauged by Messrs. Harrison & Guion, on the 8th of August, 1830, and found to discharge 60,000 cubic feet per hour. The Calamic river was gauged by me in the month of September, 1830, and found to discharge estimated at 320,000 cubic feet per hour. It was also gauged by M. Guion, assistant civil engineer, in the service of the United States, about the same time, and the discharge placed by him at 1,033,000 cubic feet per hour. It may be proper to remark here that the fall of 1830 was a season of extraordinary drought." (Can. Com. Rep., 1900, p. 135.)

6407a "The allowance of 100 cubic feet per mile per minute for evaporation and filteration was assumed by me as the basis of all calculations in deliberating the minimum quantity of water to be provided for the Illinois and Michigan canal."

"The surface of the canal as at present proposed to be constructed, is sixty feet, and bears the proportion of one and one-half to one to the surface of the canal as

at first proposed. The depth of water is now six feet whereas it was formerly four feet, consequently, the pressure of water being as the squares of the heights, and the leakage nearly as the square roots of the heights, the pressure will be more than doubled and the leakage (taking into calculation the great surface) increased in proportion to one and a half to one.

"The quantity of water then that will be required to supply the evaporation and leakage in a canal of the dimensions proposed, will be 150 cubic feet per minute per mile; and with reference to the peculiar character of the country through which the canal passes, I know of nothing which would justify a departure from the established rule, in regulating the supply of water. It is true the upper level is situated in a very wet country, but the levels below dependent upon the summit for water, are located on ground very badly calculated to retain it, and it is possible that more than the ordinary supply may be required."

"If the project of supplying the canal from Lake Michigan be abandoned, and the high level resorted to, the length of canal including feeders, to be supplied with water on the upper level is fifty-six miles, which will require 8,407 cubic feet per minute to supply the evaporation and leakage, and a further supply of 2,112 for lockage, making in all a minimum supply of 10,512 cubic feet per minute."

Very respectfully, your obedient servant,

J. M. BUCKLIN."

(Can. Com. Rep., 1900, p. 136.)

RIGHTS OF INDIANA IN THE CALUMET.

"Aside from the fact that, according to the most authentic information, the Calamic and Des Plaines do not afford sufficient water for the use of the canal, it is an admitted fact that the Calamic takes its rise in Indiana. From the latest maps it appears to bend through the corner of Illinois and pass into the lake near the State line. It is contended by some that it formerly passed into the lake in Indiana; it is, however, certain that the State of Indiana may use the water of the river to the exclusion of Illinois. The committee are not advised of

any improvement projected by the State of Indiana requiring the use of this river. But the testimony of Lieutenant Burnett herewith submitted, although not conclusive, tends strongly to prove that a company incorporated by the State of Indiana have projected a canal, which will require the use of at least half the water of that stream." (Can. Com. Rep., 1900, p. 136.)

"Upon the point now under consideration the committee have arrived at the following conclusions:"

"First—That the Calamic and Desplaines do not afford sufficient water for the use of the canal."

"Second—That if they did it would not be prudent or safe to rely upon the Calamic."

"In arriving at these conclusions the committee have relied upon the evidence referred to, consisting of extracts from reports, and other authentic documents. It must be evident to all those who have given the subject an examination that the point on the Calamic where it is proposd to take the water, is below the summit of the canal line, and only 2 feet 81-100 above the level of the lake. The erection of a dam across the Calamic would, therefore, be absolutely necessary, the effects and consequences of which cannot with any certainty be calculated or ascertained. One effect would doubtless be the overflowing of an immense tract of country and a subsequent loss of water by evaporation, absorption, etc." (Can. Com. Rep., 1900, p. 136.)

"Your committee will now proceed to the examination of the second and third reasons assigned why a change should be made in the Summit division of the canal, viz.: the length of time required and the difficulties and cost of construction. There are reasons which have
6408 often been urged and acted upon by those who have been opposed to the policy of the State's undertaking so stupendous a work; but the judgment of the people has long since been pronounced against their sufficiency. Your committee will not pretend but that there are many difficulties to be encountered in the prosecution of the work and that from five to eight years may be required for its completion. Having arrived at the same conclusion with all others who have examined the subject (*except the committee of the House*) that in order to construct such a canal as the nation has a right to expect, the waters of the lake must be used. The ques-

tion naturally recurs, shall the State persevere in the work, or shall the project be abandoned? These are the real question to be considered, in answering the reasons assigned for the proposed change: and as these questions are general and applicable to the whole line of the work, their consideration will be deferred UNTIL THE SECOND PROPOSITION FOR A CHANGE IS CONSIDERED AND DISPOSED OF."

SUBSTANCE OF REPLY. THE NATION HAS PAID WITH A LAND GRANT FOR A CANAL: THEREFORE, WE WILL NOT IMPROVE THE RIVER.

"The second reason urged, viz.: that the cost of the improvement will be greatly diminished will not be controverted, but the value of that improvement compared with the value of improvement, compared with the value of the canal and the comparative advantages of the two descriptions of improvements, have not been discussed in the report." (Can. Com. Rep., 1900, p. 137.)

"It is a work national in its character, and the people of Illinois should rejoice at the opportunity offered of being instrumental in executing a work of such vast magnitude and importance. The eyes of the civilized world are resting upon us with intense interest, for our success in a work which promises such extensive and incalculable advantages to these United States. The people of the United States are looking to the completion of this work, as forming the last link in an endless chain which shall forever hold these United States in the bonds and pledges of union, and your committee ask in the name of the civilized world, in the name of the people of the United States, and in the name of Illinois, that no local, sectional or private interests be consulted in the decision about to be made." (Can. Com. Rep., 1900, p. 137.)

"THE MAGNITUDE OF THE WORK, AND THE DIFFICULTIES ATTENDING ITS EXECUTION HAVE BEEN LONG KNOWN AND CONSIDERED."

"The representatives of the people did not engage in the work without a due consideration of those difficulties. The interest which the nation has taken in the project

is evinced by the act of Congress changing the northern boundary line of the State by the purchase from the Indians of a strip of territory extending from the Illinois to the lake, with an eye single to this project, by the act of Congress granting right of way to the State, and by the subsequent act granting lands of value sufficient to defray the whole cost of the work." (Can. Com. Rep., 1900, p. 137.)

"It has always been regarded as a national work, and the nation having furnished the means for its execution, have a right to expect the work shall be projected and executed *in a manner suited to the character and views of an united and enlightened people.* The fund for this purpose is admitted on all hands to be ample and no citizen of Illinois ought to be willing to see the faith of the State violated, public expectation disappointed, and the beneficence of the national government abused by authorizing any other description of work." (Can. Com. Rep., 1900, p. 137.)

"The question may be confidently asked—why should any one desire to disappoint the hopes and expectations of the nation in regard to the character of this work? Can it be supposed that the nation would have extended assistance by so large and extensive a grant of lands towards the execution of a project purely local, a project which at best would not accommodate the trade of Illinois alone five years hence." (Can. Com. Rep., 1900, p. 137.)

"To engage in such a project would be sporting with the bounty of the nation and degrading to the character of the State. Who among us would be willing to stand forth before an enlightened, liberal and magnanimous nation and proclaim the sentiment; the nation has furnished us with means to execute a great national work, and although by accepting those means we stand pledged to use them for the purpose intended, yet as a work of a totally different and greatly inferior character, can be executed for one-half the amount furnished, we will make such a work, and vest the other half of those means
6408a in bank stock or in improvements of a character purely local. If there be among us any who would be willing to assume such an attitude, and in the face of the world proclaim such a sentiment, it is to be hoped for the honor of the people and dignity of the State, none such can be

found in the walls of the Legislature. Such a sentiment strikes at the very foundation of the public faith, and if acted upon would lead to a total subversion and overthrow of our free institutions. The proposition is too monstrous and involves consequences too disastrous to be entertained for a moment, and your committee will not act upon the presumption, nor indulge the idea that any citizen of Illinois will ever be found giving countenance to such a sentiment. Your committee are satisfied that the canal lands will defray all expenditures required in the construction of the canal, upon the enlarged plan proposed by the canal commissioners, and they hope to see the time when its navigation will be made free to all the people of these United States." (Can. Com. Rep., 1900, p. 138.)

"There should be no question asked in regard to a supply of water from any other source than the lake, so long as it is known that the means furnished by the nation are amply sufficient to execute the work. In the completion of such a project, computations of time should be made with reference to the existence of the Union and not with reference to the growth of a village. If contrary to all calculations eight or fifteen years shall be required for its completion, this would not justify the State or the people in a violation of their plighted faith. The time is not distant when Illinois must stand at the head and in front of all of the western states, and when that time shall arrive, nothing could be a source of greater mortification to her citizens or her sisters than a knowledge that in her infancy she had been guilty of a violation of public faith." (Can. Com. Rep., 1900, p. 138.)

INTERROGATORIES FROM THE COMMITTEE ON ROADS AND CANALS TO THE COMMISSIONERS AND ENGINEERS OF THE ILL. & M. CANAL WITH THEIR ANSWERS.

"Question 1st:—What is the fall from Lake Juliet to the present termination of the canal, and what will be the cost of constructing the canal from said lake to its termination on the present plan?"

"Ans. The fall from the head of Lake Juliet to the present termination of the canal is about 75 feet. Cost

of constructing the canal from the head of the Lake to the termination—$2,213,557.42." (Can. Com. Rep., 1900, p. 138.)

6409 "Question 20.—What would be the cost of construction of slack water navigation from the foot of the rapids on the Illinois, to the head of the Lake Juliet, taking Mr. Hurd's estimate as a basis?"

"Ans. To estimate the cost of making slack water navigation of the Illinois River with any accuracy without a survey is impracticable; and to assume Mr. Hurd's estimate as a basis would show a fair comparison of costs between slack water and the Illinois and Michigan Canal, as now estimated; he having estimated lockage (it is believed at $1,500 per foot lift and the estimate of lockage on the western division of the canal being $3,000 per foot lift. Other items will also show a great difference."

"Q. 29. What quantity of water will the Calamic discharge per hour, allowing the river to be ninety yards wide, average depth eighteen inches, average current two miles per hour?"

"Ans. 10560 x 270 x 1.5—4,276,800 C. feet. (2 miles= 10,560 feet—90 yards=270 feet, 18 inches=1.5 feet.) Multiplying the three together, depth, breadth and velocity gives the cubic feet per time unit." (Can. Com. Rep., 1900, p. 139.)

"Q. 30. What quantity of water do you suppose passes out of the Saganash Swamp and Grassy Lake, also that portion that passes down the Valley of the Stoney Creek as well as that portion of water which empties into the Desplaines River?"

"Ans. In seasons of severe drought, not a drop." (Can. Com. Rep., 1900, p. 139.)

6410 "During the year 1836 the Canal Commissioners constructed by grading and bridging what was then known as the Saganaskee road, now known as Archer avenue and Archer road, extending from State street, Chicago, to Joliet." (Can. Com. Rep., 1900, p. 141.)

FROM ANNUAL REPORT DEC. 13, 1838.

PROGRESS IN CONSTRUCTION CUTTING OFF THE SWAMP ON THE SOUTHEAST.

6412 "The line is now under contract from the Chicago River to the termination of LaSalle, with the exception of about 22 miles of shallow cutting between Dresden and Marseilles and some other detached parts, amounting by estimate to $1,251,103.15, and a mile and a fraction of excavation in the Saganaskee Swamp, which from the peculiar character of the work, as described in the report of the chief engineer, must either be executed in part by agents of the State or wholly deferred until it can be drained through a series of sections below it. To avert the delay incident to the latter course, the first has been adopted, with orders for the immediate preparation of appropriate machinery. Efforts will be made to have everything ready for a commencement by the breaking up of winter. It was once thought that no subdivision of equal length would cost as much or present as many difficulties as the one which stretches through this famous swamp. The semi-final alluvion and vegetable matter of which the swamp is mostly constituted, are not more forbidding in their aspect than they are treacherous in their texture. Hence, for nearly two years it was impracticable at any season by any mode to penetrate it so thoroughly as to ascertain with certainty its true depth and character. The hard freeze of last winter and the low stage of the river and bordering morasses enabled the resident engineer, with a strong party, to traverse and sound every part of them." (Can. Com. Rep., 1900, p. 145.)

"It was found that the Desplaines could be safely turned into its ancient channel below a low island about a mile in length, redeeming by the process some three or four hundred acres of canal land, and securing to the State an important town site, which by any other arrangement, would have fallen on individual property. Convinced of the practicability of turning and dyking the river and that the flood waters of the Saganaskee Valley could be diverted into the Calamic, there was no further hesitation in cancelling the contracts on the

original circuitous route and locating a direct line costing upwards of a hundred and twenty thousand dollars less, and possessing other obvious advantages independent of the town site which at no remote period must be worth a large sum of money. For details, see reports of the principal and resident engineers." (Can. Com. Rep., 1900, p. 145.)

REFUSAL TO MEASURE THE DESPLAINES IN A GOOD YEAR.

6413 "Judge Wright arrived at Chicago in the early part of October, and on the 20th of the same month, Mr. Burnett made a detailed report, with a topographical map and estimates, of the quantities of excavation and other work necessary to effect the object on the most favorable route of the country was susceptible. *At that time and through the whole summer the Desplaines River was generally admitted to be unusually flush,* as was also the Calamic. No gauges were therefore ordered, and consequently those of the Desplaines made by the United States engineers in 1830, and of the Calamic by Mr. Bucklin, were adopted as the basis of the investigation." * * * (Can. Com. Rep., 1900, p. 147.)

"GAUGING IT IN THE DRY SEASON."

"The past dry season rendered the measuring of the Desplaines almost unnecessary, since for nearly four months the tightest dam that could be erected would not, at the point for taking out a feeder, have saved water enough to propel a single pair of ordinary mill-stones. Repeated gaugings from the 20th of July to the 22d of August and it was afterwards still lower, *gave an average* of less than the measurement of 1830." (Can. Com. Rep., 1900, p. 147.)

SWAMPS AND BLUFFS.

6413a "The fifteen sections extending from the Chicago River to the 'Point of Oaks,' eight miles and lying through the low wet prairie periodically flooded by the Desplaines River through Mud Lake, have been com-

pletely defended against any possible danger from surface water; and are now, by means of those defenses, accessible and tenable at any season of the year. The same plan of drainage and defense is gradually progressing from the 'Point of Oaks' to the Sanagaskee Swamp, and enough has been done to inspire the fullest confidence in the practicability and moderate cost of the work." (Can. Com. Rep., 1900, p. 148.)

"The costly and exposed sections around the base of the Kankakee bluffs are in the hands of experienced contractors, who are known to have executed extensive and more difficult jobs on the St. Lawrence Canal. The safety of the plan of construction is now generally conceded, and the price at which the work was taken was fair. From this point to Marseilles nothing has been let; thence to Ottawa the work is advancing steadily and will be finished in good time." (Can. Com. Rep., 1900, p. 148.)

COST OF CONSTRUCTION—VALUE OF LANDS EQUAL TO COST.

6415 "It appears from the estimates of the chief engineer as will be seen by an examination of his report that according to the contracts made, adding a full allowance for the light sections not under contract, the sum of $7,621,442.57 will cover, with very little variation, every expense for a convenient, substantial and elegant canal, such as it ought to be for commercial economy, durability and State character. The original estimate of the same engineer, exclusive of the additions at Ottawa and the enlargement of the basin in Chicago, was $8,654,337.51, being $1,032,894.94 more than will be required to complete the work." (Can. Com. Rep., 1900, p. 151.)

FROM CHIEF ENGINEER GOODING'S REPORT DEC. 10, 1838.
PROTECTION FROM OVERFLOW OF DESPLAINES.

"In conclusion, the Commissioners reiterate the opinion, expressed in the first annual report to the Governor, that 'if these lands and town lots be very gradually and cautiously brought into market, reserving the chief part until the canal shall have been completed, and all its ad-

vantages clearly understood, there is more than enough to build it on the present capacious and permanent plan. But, on the contrary, if sales be forced and all the lands be disposed of before their true value be known, there cannot fail to be a deficit of several millions of dollars. Many tracts of land that would not bring more than five or six dollars per acre if sold immediately may be worth a few years hence, from twenty to one hundred dollars. Innumerable instances of the kind might be adduced, some of them in the vicinity of the canal."

"All of which is respectfully submitted.

W. F. THORNTON,
Late President.
JACOB FRY,
Acting Commissioner.

(Can. Com. Rep., 1900, p. 152.)

6415a "The part of the line from the south branch of the Chicago River to summit or the Point of Oaks is now placed in such a situation as to insure its safety from the hight water caused by the overflowing of the Desplaines River."

"This has hitherto been the cause of much trouble and delay, and occasioned for a considerable length of time, an entire suspension of the work. A small part of the deep earth cutting in the valley of the Desplaines, between Summit and the Saganaskee, has also been protected, so that the work may be successfully prosecuted during the seasons of high water." (Can. Com. Rep., 1900, p. 152.)

USE OF RIVER CHANNEL.

"The location of the canal at the Saganaskee Swamp and the plan of constructing it have materially changed since my first estimate was made, and a very decided advantage gained in the expense, in the symmetry of the line, and in the increase value of State property. The canal as now located occupies as much of the channel of the river as can be made available upon a straight line. A new channel for the river will be opened on the west side of a low island or peninsula which extends the whole length of Sections 42, 43 and 44, and will occupy

nearly the same place where the main channel of the river appears once to have been. An embankment will be made connected with the spoil bank on the west side of the canal at the lower end of Section No. 41 (which is just above the Sag and near the present channel of the river) crossing the river from that point to the island, and running thence across the island to a bayou, which will form a part of the new channel; thence parallel with the canal and about twenty-two chains from it, upon the west side of said island to a point near the lower end of it; and thence across the canal upon Section No. 45, where it will be connected with the protection so as to exclude the waters of the river. Parallel with and near the embankment upon the west side of the island, the artificial channel will be made so as to unite the bayou above mentioned with one that extends up from the lower end of the island." (Can. Com. Rep., 1900, p. 152.)

"This channel will be opened 200 feet and all the earth excavation from it deposited upon the island side. It
6416 is believed that the depth of excavation sufficient only to remove the roots will be all that will be necessary; for the whole river being forced into the channel by the embankment above described, will cause a current sufficiently strong in time of floods to deepen and enlarge it to the requisite dimensions. There is a large, deep basin, or expansion of the river below the channel of sufficient capacity to hold all the deposit that can be washed into it." (Can. Com. Rep., 1900, p. 153.)

A Season of Severe Drought.

6416a "The value of the water power created here and at other points upon the canal, by drawing a supply of water directly from Lake Michigan, can be fully appreciated after a season of *such severe drought as the past.* The Desplaines River and many other considerable streams of the country have been nearly dried up, and probably three-fourths of the water-mills throughout a large portion of the United States have been standing still for the *last three months.*" (Can. Com. Rep., 1900, p. 154.)

LOCATION OF BASIN AND DAMS NOS. 1 AND 2.

6417 "Lock number 4 brings the canal to the level formed by the pool of dam number 1. A short distance below said lock, the line runs into the channel of the Desplaines River, which will here be turned to the right and the whole of the water forced into the channel upon the west side of Norman's Island." (Can. Com. Rep., 1900, p. 155.)

"The rock excavation in the bed of the river, from the point where the canal enters it to the upper end of said island, averages about two and a half feet in depth; but when the river is turned the excavation will be attended with no particular difficulty. The excavation continues across the island running out at the lower end of it, where the towing path crosses the river, and is thence continued down the right bank to the guard lock at dam number 2, where the independent canal again commences. From this point to the termination of the canal, the towing path is upon the left or south side." (Can. Com. Rep., 1900, p. 155.)

"From Norman's Island to dam number 1, which is located upon canal land, just above the town of Juliet, two strong walls with embankments between them, will be constructed upon the east side to confine the water in the pool of the dam. It is proposed to raise these walls and embankments 7 feet above the comb of the dam, to be perfectly secure from the highest floods. From dam number 1, to dam number 2, a similar defense will be required, but of a much less height." (Can. Com. Rep., 1900, p. 155.)

DUPAGE FEEDER.

"A feeder will be taken into the canal from the Du Page about three miles above the crossing. The last season has shown this stream to be one of the most permanent in the State, and it can be introduced as a feeder at a very moderate expense." (Can. Com. Rep., 1900, p. 155.)

SLOPE OF WALL AT DRESDEN.

"From the Du Page to Dresden the line has been but
6417a slightly changed since the first survey, but the quantity of slope wall to protect the canal at the Kankakee bluffs has been considerably increased to render the canal doubly secure at this exposed point." (Can. Com. Rep., 1900, p. 156.)

FROM CHIEF ENGINEER GOODING'S SUPPLEMENTAL REPORT OF DECEMBER, 1838.

6419a PROGRESS OF WORK.

"The number of laborers engaged upon the canal on the first of December last was not far from 350, and the force was not much augmented till the opening of spring navigation. There are now actually employed upon the canal, and in the various operations immediately connected with canal construction, about 1,700 men." (Can. Com. Rep., 1900, pp. 160-161.)

"HIGH WATER IN DESPLAINES—THE STATE SIDE DITCH.

6420 "The streams for a great part of the year have been *very high, particularly the Desplaines River;* but less interruption to the execution of the work has resulted from this cause than might have been anticipated from the unprotected state of most of the sections; and it has been clearly shown that a defense can be made at a moderate expense, that will render the whole work perfectly secure during the highest floods. The high water in the Illinois River has been the cause of serious delay in the excavation of the steamboat basin and channel at the termination, and a large force will be requisite upon the work as soon as a favorable season for operations shall be presented." (Can. Com. Rep., 1900, p. 161.)

"Considerable progress has been made in the deep earth excavation between the Chicago River and the Point of Oaks, but there has been so much water upon the surface since the work was let that the side ditch, which is to be formed on the south side of the canal without the spoil-bank, has not yet been finished, nor but

a small part on the bank on the north side, which is to guard against the water that flows from the Desplaines River in time of floods, and which is to be formed of earth excavated from a ditch within the prism of canal." (Can. Com. Rep., 1900, p. 161.)

6421 "During the past year ditches have been laid out, placed under contract and partly executed from the Point of Oaks to Chicago River, and from the mouth of Saganaskee swamp to Big run; the object of which is to receive and carry off the water which must otherwise drain into the canal, or accumulate behind the spoil-banks. By the aid of these ditches, the water (except what falls behind the spoil-banks) may be effectually prevented from conveying deposit into the canal, and also from interrupting the progress of the work during the construction." (Can. Com. Rep., 1900, p. 163.)

FROM RESIDENT ENGINEER TALCOTT'S REPORT OF DEC. 10, 1838.

"CANAL OVERFLOWED BY RIVER—DITCH TO CUT OFF THE DRAINAGE.

6422 "Upon resuming charge of the line in March, 1837, I found nearly every section, one to fifteen, inclusive, was the second time offered for contract in May, 1837. The unfavorable appearance of the work (nearly one-half of which was *overflowed by the river*) prevented much competition, and the proposals received were considered much above the real value of the work. Sections one, two and three only were awarded. The commissioners then determined to defend the work by a continuous embankment on the north side formed by excavation from the prism of the canal, and on the south by a *ditch* without the spoil-bank *to receive the drainage of the country* which is discharged into the southernmost branch of Chicago River." (Can. Com. Rep., 1900, p. 165.)

"The season was far advanced before much progress had been made, and the imperfect protection proved no defense against the unusual high water in December, 1837. Nearly every section that had been commenced was overflowed and the work generally suspended during the winter." (Can. Com. Rep., 1900, p. 166.)

USE OF RIVER BED.

6422a "That part of the line opposite to the Saganaskee valley was examined with reference to adopting the present channel and changing the river to what appears to have been its former channel on the west side of a peninsula island. These examinations were made at a high stage of water, which rendered it difficult to make them with the desirable precision. The data presented, however, were considered sufficient to determine the location by avoiding the river, yet approaching it somewhat nearer than the original line, and improving its general direction." (Can. Com. Rep., 1900, p. 166.)

DRAINAGE RESERVOIRS.

6423 "Between the Point of Oaks and the Saganaskee Valley, there will be required four receiving reservoirs for the drainage of the country. These will consist of a pit formed in the rear of the spoil bank, about thirty feet square excavated to two feet below top-water line of canal, with the sides and bottom paved, and communicating with the canal by a narrow passage. It is believed that these will receive the deposit usually carried into a canal by the drainage water—forming bars expensive to remove, and frequently proving a serious embarrassment in the navigation." (Can. Com. Rep., 1900, p. 167.)

"PROGRESS OF WORK—OVERFLOW BY RIVER.

6423a "When the amount of work performed during the two past years is contrasted with the expectations then formed by many of its friends, some may feel disappointed, yet, when it is considered that the season of 1837 was unusually wet; that nearly every section that had been commenced was *overflowed by the river* and the work necessarily suspended until the ensuing spring; the sickness that has prevailed through the past season; that the work is now generally secure against the surface water; and that cranes and railroads are now successfully employed for removing the rock on nearly every section—it must be admitted that much has been

done under the circumstances, and that the work presents a truly flattering prospect for its rapid progress in future." (Can. Com. Rep., 1900, p. 168.)

PIVOT BRIDGES.

6424 "Believing that it would be found advantageous to the commerce of the country for the lake vessels to navigate the canal *as far as Lockport* turning or pivot bridges have been estimated." (Can. Com. Rep., 1900, p. 168.)

FROM RESIDENT ENGINEER WM. JEROME'S REPORT, 1838. JOLIET BASIN—MOUTH OF RIVER—LOCATION OF CANAL RIVER WALLS.

"For three-fourths of a mile above and nearly through Juliet, the canal occupies the bed of the Desplaines River and is of increased width. The banks for this distance *are to be raised some feet above the ordinary height*, and to be protected from the wash of the floods by substantial walls on the inner sides."

"The river is to be raised to the requisite height by two stone dams at Juliet. With the upper dam is connected lock number 5, of ten feet lift, with a guard of four feet, making a valuable water power on canal land. With the lower dam is connected a guard lock; at which point the canal leaves the river."

"Owing to the height of the spring floods, it became apparent that the line from Juliet to and over the Du Page River would be benefited by being located on a higher level than the former, of some five or six feet. This location varies the line considerably from the original, although, taking the whole distance, the cost of construction is not materially changed; and it is believed that a better location has been obtained. By this means the Du Page River is passed by an equeduct sufficiently elevated above the highest floods to secure its permanency."

"About three miles above the aqueduct, the Du Page is to be received into the canal by a side cut of twenty chains in length, connected with a dam across said river.

"There is to be guard bank extending from the dam

up the east side of the river twenty-six chains. This bank is deemed necessary to prevent serious injury which would otherwise accrue to the canal at this point, from the high floods. Immediately below the aqueduct, are located locks number 6 and 7, with an aggregate lift of fifteen and a half feet. From thence to Dresden, a distance of five miles, the line occupies nearly the ground of the original location. The greater portion of this distance, the canal passes at the foot of the Kankakee bluffs; some part of the way *in the edge of the Des-*
6424a *plaines and Illinois Rivers*—the towing path bank to be protected from the great floods and extensive ice jams formed by the uniting of the waters of the Desplaines and Kankakee Rivers, *by a strong wall on the river side.*" (Can. Com. Rep., 1900, pp. 169-170.)

1837. Deep Cut or Shallow Cut.

From Consulting Engineer Wright's Report, Oct. 23,

6426a "From an examination of the various canal documents of the last session of the Legislature, it seems that the question stands as follows:

'Shall the feeding water be taken from Lake Michigan by a deep cut? or, shall the summit be raised ten feet above the lake, and fed from streams to be brought into it? It has been supposed, and no doubt correctly, that only three streams of water can be brought on the Summit level: First, the Desplaines River, second, the Calumet River; third, the Fox River.'

'The Desplaines was not in a proper situation to gauge, *as there had been copious rains;* I therefore take the former measurements of the United States engineers, as stated in the reports of the canal committee, at 54,800 cubic feet per hour.'

'By calculation it is found that, if twelve boats pass per hour, the lockage water to lock up and down ten feet will be 475,500 feet per hour. If we then add for leakage at the locks (a small item) and for evaporation, we ought not to say less than 500,000 cubic feet of water per hour will be required, when boats are passing as fast as they can be let through (or twelve per hour). It is true that, if boats passing each way were to meet so as to pass a boat up with the same water which passed one down, then only half the amount of lockage water

should be estimated for the twelve boats per hour, although, I believe twelve boats per hour may be passed each way, if the locks are well attended, and are in perfect order for filling and discharging the water rapidly.'

'These premises being admitted, we have to look for 445,200 cubic feet of water per hour more than the Desplaines gives us at low water.' (Can. Com. Rep., 1900, p. 174.)

"Taking a view of the whole ground, and looking at the probable cost of the deep cutting, of the low level,
6427 and the length of time it will take to accomplish it, and the time the country will lose the benefit; looking also at the great good to the country, and the pecuniary ad-
6427a vantage to the State and the canal, by the creation of water power at Lockport, and Juliet, I have no doubt upon my mind that the present plan of cutting down the Summit, so as to draw feeding water from Lake Michigan, ought to be continued, in preference to any other which I can suggest." (Can. Com. Rep., 1900, pp. 175-176.)

USE OF DESPLAINES AS SUMMIT FEEDER SIDE DITCH TO CUT OFF DRAINAGE.

6429a "I would not fill the summit level with the water from the Chicago but let it fill slowly from other streams before I broke this bar of earth; this can be removed by a dredger."

"4th. Is the present plant of drainage a judicious one, and what difficulty may be anticipated from water in excavating the Summit?"

"The greatest difficulty in working this division is the water, beginning at Chicago River, and from thence to the end of Section 15. If I have understood the plan of the chief engineer, it is his intention to have a large ditch outside of the spoil-bank, on the upper or southeast side, and this to be extended as now partly done, to the south branch of the Chicago."

"It may perhaps be found that some of the sections near the Point of Oaks do not drain freely by this ditch; if so, then they must be drained across the canal. A guard bank of earth must be raised along the north side to keep out the water from the Desplaines River and from the prairie. These precautions will keep out sur-

face water, which is nearly all they have to contend with on this part. From the Point of Oaks, on Section 15 to 45, is the most difficult part to drain." (Can. Com. Rep., 1900, p. 180.)

6430 "But in order to drain this part, from 15 to 45 effectually, a very large drain nearly or quite the size of a forty-foot canal, should be cut from Section 42 or 43, and extend eastward through the whole Saganaskee swamp to Stony Creek. This must be cut three feet at the canal and 8½ feet at the summit of the swamp, 5 miles east of the canal, and then continue 7 or 8 miles further before it will find a free discharge; the water having so far to run must have a large bed, as there will be a great collection of water in heavy rain." (Can. Com. Rep., 1900, p. 181.)

6433 DAMAGE FROM A SUSPENSION OF THE CANAL DEC., 1839.

(Consequent upon the Financial Depression of 1837-8.)
Considered pp. 185-189.

COST OF THE WORK AND VALUE OF LANDS.

From Commissioners' Report of Dec. 21, 1840. (Can. Com. Rep., 1900, p. 187.)

6433a "The lands, towns, water power, coal mines and stone quarries must bring their improved worth or they will not be sufficient to pay the current interest and discharge any considerable portion of the debts. On this subject the board remain firm in the opinion expressed in their first annual report and repeated in several others, that, 'if these lands and town lots be gradually and cautiously brought into market, reserving the chief part until the canal shall have been completed and all its advantages clearly understood, there is enough to build it on its present capacious and permanent plan. But on the contrary, if sales be forced before their true value be known, there cannot fail to be a deficit of several millions.'" (Can. Com. Rep., 1900, p. 188.)

6434a (Can. Com. Rep., 1900, p. 190.)

LEGISLATIVE COMMITTEE'S REPORT. (1840-1.) SUMMARY OF HISTORY—RECOMMENDS COMPLETION.

"By an Act of Congress of March 30, 1832, the state was authorized to construct the canal over the public lands and ninety feet of land was given on each side of the canal to the state. The canal was to be begun in three and completed in twelve years. The act gave the state the right to use any materials upon Government lands, necessary to complete the work. Another act was passed March 2, 1827, which granted to the state a quantity of land equal to one-half of five sections, on each side of the canal, and reserving each alternate section to the United States. Another act of Congress was passed March 2, 1833, granting to the state the right to construct a railroad in the place of a canal, and extending the time to complete either to five years. In consequence of this grant the legislature of Illinois appointed, at the session of 1822 and '23, a board of Canal Commissioners who made an examination and an estimate of the probable cost of the work. This estimate cost, which was only made from a surface survey, without ascertaining the amount of rock excavation, fell a little short of $800,000. The survey cost the state over $10,000. At the same session, a company, with a capital not exceeding one million, was chartered, to complete the canal, which was to be constructed and owned by the company for fifty years—after which the state had a right to purchase it, by paying the cost of construction and six per cent. per annum; but in 1826, this act was repealed.

In 1829, a new board was organized, with power to make further surveys and begin the work. And by a further act of 1831, the commissioners were authorized to lay out towns, and did proceed to lay off and sell lots in Chicago and Ottawa, and sell lands along the route. They also reported separate statements of the cost of constructing a canal and a railroad between Lake Michigan and the Illinois river. By estimates of the first work they reported it cost at $4,043,086.50 and that of a railroad $1,052,488.19. At the next session the legislature abolished the office of canal commissioner, after these efforts had cost the state $16,972.83. Again at the ses-

sion of 1834 and '35, Mr. Forquer, the chairman of the Committee on Internal Improvements, considering the importance of this subject (which had been referred to in the Governor's message), and with the feeling of a patriot and the views of an enlightened statesman, again brought this question, by his report, to the consideration of the Senate, and to every citizen who felt the great importance of this enterprise to the present and future prosperity of our state.

The people of Illinois had, in this manner, and by the sale of the canal lands and the beginning of the work, so far accepted the grant of the General Government, and had duly considered and determined whether they would yield this grant of land to any company, or undertake the canal on the faith and credit of the state.

The lucid report of Mr. Forquer, of 1835, induced another enactment of the legislature which seemed conclusively to fix the settled policy which the state had determined to pursue, on the acceptance of this grant from the United States, and the manner in which the work was to be commenced and completed—that is, on the sole responsibility of the state. But owing to the imperfection of the act of 1835, the Governor was not entitled to borrow the money necessary to begin the work.

Again in 1836 the people, impressed with the magnitude and value of this work to the growth of our infant but fast settling state, asked the legislature to pass another law, empowering the Governor to negotiate a loan on the sole faith of the state. This last act created an-
6435 other board of canal commissioners, who commenced new surveys and estimates preparatory to renewed exertion to its completion. Contracts were let, and labor performed to the amount of $35,744.83. In this year the commissioners laid off town lots, at Chicago and sold them to the amount of over $1,000,000 with a common understanding that the canal was to be completed. The action of the legislature thus far, and in 1836 especially, had furnished to citizens of sister states and to foreigners, sure reasons for emigration here, and the inducing and powerful motives for the investment of their capital. • • •

Again in 1837, the legislature, coming afresh from

their constituents, after the work was begun, and impressed with its importance, passed an amendatory act of 1836, to aid in its completion. This year there was expended on the canal $356,899.43. The commissioners also sold additional town lots and lands, to assist in paying off the canal debt. These lots and lands, also were sold, as the others had been, with the common understanding that this enterprise was not to languish or fail, by our neglect to put in requisition the available means, so ample, and which had been looked to ultimately, for the final completion of this work. The close relation then, which exists between this long contemplated improvement and the lasting interests of our citizens, and so universally acknowledged and by few questioned, induces the committee, with the more confidence, to ask its final completion."

CANAL VS. RAILROADS.

"The committee will not dwell longer on this branch of the subject but will hasten to answer a question which has been recently made by some gentlemen of standing, in and out of the legislature, 'whether it would not be the part of wisdom now to abandon this canal and construct a railroad along the route?' The committee are not insensible to the benefits arising to the country from the completion of well planned railroads. But they have no difficulty in coming to a conclusion to prefer canals over railroads." (Can. Com. Rep., 1900, p. 191.)

GOV. FORD'S MESSAGE DEC. 8, 1842.

RECOMMENDS COMPLETION.

RECOMMENDS CHANGE TO HIGH LEVEL—SHALLOW CUT.

6437a "The canal lands and lots and other property belonging to it, stand upon a different footing. This property was first given to the state in trust to make the canal. It was afterwards appropriated by the General Assembly to that specific object, and solemnly pledged to creditors for the payment of money heretofore borrowed, and which money has been used in the construction of

the canal so far as it has proceeded. Those creditors, therefore, have such a separate and exclusive right to its avails as would not without their consent justify throwing it into an aggregate fund for a general payment of debt. If they should require it we would be bound in duty and honor to surrender it to them. It is, however, believed that no such requisition will be made. They understand their true interest too well; they know as well as ourselves the importance and profitable character of this great work, and would prefer looking to its probable completion rather than an immediate sacrifice of the means of carrying it on, for ultimate payment. They must, and do understand, that if this property should be sacrificed, the state will have no means or payment for a long time to come; whereas, if the canal progresses, to completion, the lands and lots and water power will be quadrupled in value, and the tolls alone would in a short time pay interest on all the debt contracted for its construction." (Can. Com. Rep., 1900, p. 196.)

6438 "The sum of four million eight hundred thousand dollars, or thereabouts, has already been expended on this work in its construction, and in the payment of interest; seven hundred and fifty thousand, five hundred and thirty dollars and forty-two cents, of which has been raised by a sale of lands, lots, timber and stone; 10,580 acres of land were sold in 1830 for $14,204.87; also at the same time 126 lots in Chicago and 9 lots in Ottawa were sold for $4,594. Since 1836, 40,295 acres have been sold for $302,248.40; and about 189 lots in La Salle, Ottawa and Lockport for $77,793; stone and timber to the amount of $9,659.00 and sales were made in Chicago and Ottawa in 1836 for which cash has been received to the amount of $544,074.97; and there is now due the canal fund on account of sales, the sum of $207,682.53.

In addition to this balance, the property belonging to the canal fund is as follows: Two hundred and thirty thousand, four hundred and sixty-seven acres of land, 370 lots in Chicago, 679 in Lockport, 914 in Ottawa, 1,528 in La Salle, other town property to be laid out at Juliet, Du Page and other places; and the water power on the entire line of the canal; the whole, valued by the

Acting Canal Commissioner, from whom these statistics were derived, at the sum of $5,050,000.00. It is, however, due to the subject to state, that this valuation is predicated upon the hypothesis that the canal is to be completed, or insure prospects thereof.

I therefore, respectfully recommend to the General Assembly, that the further measures to be adopted for the prosecution of the work should be upon the *plan of a moderate sized high level canal.* I am fully sensible of the great responsibility assumed by me, in making this recommendation, nothing but a full conviction of our inability to proceed with the enlarged work would justify a *change of plan after it has progressed so far as it has.* But, in view of our present and prospective want of credit and resources, it does seem that the enlarged work is not to be achieved by any means now in our power; and, indeed, it does seem that we are to choose between reduction and no canal of any description." (Can. Com. Rep., 1900, p. 197.)

LEGISLATIVE REPORT—1842; THE MORTGAGE TO CANAL TRUSTEES PROPOSED.

6438a "After careful investigation and close examination of the various plans and suggestions for carrying on the canal the committee have come to the conclusion that there is but one plan which, at the present time, appears practical and worthy of consideration; they have come to this conclusion from an examination of different letters and plans from the most distinguished citizens and capitalists in the City of New York and also from London. The views given in the letters and plans referred to are judicious, sound and practical, and if carried into effect would undoubtedly secure the completion of the canal and the ultimate payment of the whole debt of the state. * * *

If we attempted to rear a structure of too gigantic proportions, one which fell of its own cumbrous weight, it does not become us to spend our time in vain regrets and grieve in idleness over our disappointments, but let us gather what yet remains uninjured from the ruins and erect a fabric more proportionate to our means.

The proposition for carrying on the canal made by many of the creditors of the state, is as follows:

First, the state to convey all the canal lands, town lots, water power, coal beds, stone quarries, and all the canal property, together with all the tolls that may be derived from transportation upon the canal to trustees, who shall hold the aforesaid property in trust for the canal bondholders. The aforesaid trustees to be appointed as follows: Two on the part of the creditors and one on the part of the state. The canal bondholders are to subscribe a sum sufficient to complete the canal to be disbursed by the trustees in the construction of the canal. The trustees to have all the power given to the Canal Commissioners. After the canal shall be completed the trustees are to proceed to sell the canal property from time to time as the demand may require. All receipts of moneys are to be paid, first, to reimburse the subscribers for the new advance, and second to pay the bonds they now hold against the state. Those bondholders subscribing to have a preference over all others, and those refusing to subscribe to be paid last. After the creditors, who may advance the required means, are paid the amount of subscription and the bonds they now hold, the duties of the Board of Trustees shall cease, and the state again to have the entire control of the canal and its property." * * * (Can. Com. Rep., 1900, p. 198.)

FROM SENATE REPORT DEC. 14, 1842. PROPOSES ASKING NATIONAL AID.

6439a "That in consequence of the present embarrassed condition of the canal the total suspension of the work and the utter inability of the state to afford any aid, they deem it right and proper to ask Congress further aid in *carrying on and completing this great and noble improvement.* Your committee would respectfully suggest the propriety of so framing the memorial as to place the requisition upon the ground of this canal being a national work, and that it was in consequence of the donation from the General Government that the state was induced to commence this gigantic undertaking, under the belief that the apropriation of land was

sufficient to complete it. That the donation was based upon the estimates of the United States engineers, and that time and further developments have shown that their estimates covered but a small part of the real cost of this canal. That they believe it was the intention of Congress to have the donation cover the cost of the work, and that now, the state having become involved and unable to progress with it, Congress are in honor bound to render further aid." (Can. Com. Rep., 1900, p. 200.)

FROM ENGINEER GOODING'S REPORT DEC. 1842.

"The cost of the canal may now be represented as
6440 follows, to-wit:

The amount of work which has been completed and that which is now under contract	$6,751,006.21
The amount of work not under contract	906,665.11
For superintendence and contingencies	350,000.00
Total cost of the canal	$8,007,661.32

(Can. Com. Rep., 1900, p. 201.)

6440a (Can. Com. Rep., 1900, p. 202.)

The total amount of work done is	$4,699,492.03
Cost of superintendence and contingencies properly chargeable to construction, account to this time about	210,000.00
Total expense incurred	$4,909,492.03
Total amount remaining to be done	3,098,169.29

Of the amount to be done $2,958,169.29 is for unfinished work, and the balance ($140,000) for superintendence and contingencies.

From the time the Illinois and Michigan Canal was first projected there seems to have been a difference of opinion amongst its friends in relation to the proper size of the work and plan of its construction. As this difference of opinion still prevails, in order, in some measure to account for it, it may not be improper to allude to the different surveys which have been made, and the different opinions entertained and expressed by those who made or directed them, in relation to this great work.

The first survey was made in the autumn of 1824, by Colonels Post and Paul, under the direction of Messrs. Sloo, Brown, West and Smith, Canal Commissioners. An examination of the reports of these gentlemen will show that notwithstanding their ability, their survey and estimates did not give a correct idea of the obstacles to be overcome in the construction of the canal. In fact, the little that was known of the country previous to the commencement of the examinations, and the very imperfect knowledge which the best informed in this country at that time had in relation to public works of this character, rendered it almost impossible that they should have formed very correct opinions of the magnitude of the undertaking. But low as were their estimates, it is obvious they were higher than the public expected; for the Commissioners, after giving the estimates of the engineers, remark, that 'these estimates, it is true, exceed considerably the general expectation, and the Commissioners are too well aware of the financial embarrassments of the state, at present, to indulge a well founded hope that immediate measures can be adopted for executing a work of so much importance.

The estimates of the five different routes marked out, were as follows, to-wit:

First route is estimated at.....	$716,110.71
Second route is estimated at.....	639,542.78
Third route is estimated at.....	668,289.68
Fourth route is estimated at.....	682,610.20
Fifth route is estimated at.....	689,746.96

On the fourth route the supply of water was to be drawn in part from Lake Michigan and on the fifth, entirely from this source; though upon both plans or routes the deep cut of our present plan must have been encountered.

The canal, as estimated above, would have been two feet in depth, and twenty in width, less than our present canal.

The gauges of the different streams from which a supply of water would have been drawn, are given as follows, to-wit:

Desplaines river	at	Cache	Island..	117,000	feet	per hour.
DuPage	"	"	"	..114,000	"	"
Aux Sable	"	"	"	.. 60,000	"	"
Fox	"	"	"	..450,000	"	"

The engineers remark in relation to these gauges that the 'results are predicated upon the present stage of water,' and that the quantities may sometimes be lower.

From the foregoing extracts it is plain that no difficulty was anticipated in relation to a cheap supply of water for the canal. If the streams on the route would not afford sufficient water, it would cost no more to procure a never-failing supply from Lake Michigan than from these sources.

The surveys of the canal route by the United States engineers in 1830 and in 1831, seem to have been made more to ascertain the practicability of the work and the general character of the route, than with a view to obtain data for a particular estimate of cost. In fact, I
6441 believe that no estimate of the cost of the work was submitted until the summer of 1834, at least I have never seen one of an earlier date. Gen. Gratiot submitted his estimate in June, 1834, of the cost of constructing a steamboat canal from Chicago to the mouth of the Little Vermilion river. The dimensions were as follows, to-wit:

For the first twenty-seven miles from the lake, *or to the running out of the lake level, the canal, except two miles, is one hundred feet wide and ten feet deep.* The remaining two miles to be distributed in short sections at convenient distances, 'to be *two hundred feet wide;* to accommodate boats while detained in changing cargoes without interruption to the navigation.' The remaining distance of sixty-five miles 'to be not less than *one hundred feet at the surface and six feet deep.* The total cost of this canal was estimated at $4,299,439.81.

The contest in the winter of 1836-7 closed by the passage of a law authorizing the Canal Commissioners to prosecute the work upon the present plan, but requiring them to procure a skillful engineer from abroad to examine and report whether 'a supply of water from sources within the legitimate authority of the State of Illinois,' could be procured without resorting to the lake, or *in other words, whether a shallow cut, or high level canal could be supplied with water,* and if so, whether enough could be gained to make it for the interest of the state to change the plan which had already been adopted by law, after a considerable portion of the work had been placed under contract.

Judge Wright was the eminent engineer whose services were secured by the Commissioners, and the substance of his report upon this subject is well known to the public. From the time his report was published until the work was nearly suspended on account of the financial embarrassments of the state, little was said about a change of plan. It was supposed that there was nearly or quite canal property enough to complete it upon the deep cut plan, and so long as the state could procure the money to carry on the work, little solicitude was felt as to the plan, though it was still believed by many that it should have been changed, or that the high level should have been adopted at the outset.

It never having been made a part of my duty to investigate this subject I have hitherto deemed it improper to allude to it in my reports, but at this important crisis in the affairs of the canal, when the work is nearly suspended, the state credit gone, our citizens discouraged, and no hopes entertained of brighter prospects until the completion of this important improvement is rendered certain, I shall present a few facts and conclusions which I believe may be of some public utility, and which certainly can do no injury to the best interests of the canal.

The length of the canal from Chicago river, or the waters of Lake Michigan to Marseilles is seventy-four miles. The demand for water upon this line, assuming the usual data (as far as adapted to the present work), adopted by experienced engineers in other states, and obtained by actual experiments on several different canals, may be calculated as follows, to-wit:

From Section No. 1 to Section 64 inclusive, for evaporation and leakage at lock gates, there being no loss by filtration.....	400	cubic per min.
From Sec. 64 to Marseilles, 47 miles, at 150 cubic feet mile.....7,050	"	" "
Lockage water for locks at each end of the line, on plan of the high level 2,174	"	" "
Total demand 9,924	cubic per min.	

(Can. Com. Rep., 1900, p. 203.)

6441a I have calculated no loss by filtration from Chicago river to Section 64, because I have supposed that the canal upon the high level will be sunk so low that the surface of the water, in all cases, will be below the natural surface of the ground and on a level, for most of the distance, as low as the surface of the Desplaines river. The soil, too, and the rock through which the excavations are made, are of such a character that no danger need be apprehended that any water will leak out or be absorbed on this portion of the work. The evaporation is in reality, almost too small an item to be taken into the account at all, but it is mentioned because it is usually estimated in computing the demand for water upon canals.

But the evaporation upon the whole of our canal, calculating the length at ninety-six miles, *and the width at sixty feet* would be but 264 cubic feet per minute, estimating the evaporation during a season of navigation of 240 days to be three feet (which is about the average annual evaporation in this country), or it would be less than three cubic feet per minute per mile.

The leakage at the lock gates will be but a small item, if the work be properly executed and the allowance made is undoubtedly sufficient.

In calculating the amount of lockage water necessary, I have estimated water sufficient to fill the locks (one of eight and one of ten feet lift) *one hundred times in every twenty-four hours.* But it is not probable that this amount of water will be necessary for the *passage of* 100 *boats.* As nearly an equal number of boats must pass each way during the season of navigation, it is obvious that the chances are nearly equal that a single lock full of water would pass one boat up and another down. Or, in other words, it is as likely that the two boats will meet passing in oppostie directions, as that one will closely follow another going in the same direction. It is, therefore, possible that the quantity of water estimated for 100 lockages across the summit, would be sufficient to pass 150 boats.

Gauge of Calumet river by U. S. Engineers—17,281 per min. by Bucklin, 5,323 per min.

S. Desplaines river Post & Paul, 1950 by Bucklin 1,000 per min.

S. DuPage river U. S. Engineers, 1665 by Bucklin 6916 per min.

The aggregate minimum discharge of the three rivers would then be shown thus:

Calumet, 5,333; *Desplaines,* 1,000; DuPage, 1,665= 7,998 cubic feet per minute.

This quantity of water was to supply the filtration and evaporation of seventy-four miles of canal, the necessary lockage water, and the loss at the dams and upon the Calumet feeder. It is, therefore, obvious that there would have been barely a supply for a canal of ordinary dimensions, admitting that the water could be introduced (as it might have been) at the points desired.

The Calumet was gauged on the 17th of May and was found to discharge 8,296 cubic feet per minute, and again on the 24th of September, when the quantity was 6,137 cubic feet per minute, and still again on the 17th of October, when the discharge was reduced to 5,634 cubic feet per minute.

A very satisfactory measurement of the DuPage was obtained on the 21st of September and the discharge of water was then found to be 2,928 cubic feet per minute. (Can. Com. Rep., 1900, p. 204.)

6442 The construction of the perfectly water tight dam at Joliet has enabled us to ascertain with precision the quantity of water flowing in the Desplaines. This river has been nearly dried up; the measurement on the 20th of September showing 338 *cubic feet* and on the 21st of the same month 373 cubic feet per minute.

The quantity of water in all these streams continue to diminish till the first of November, when the probable quantities would have been about as follows, to-wit:

In the Calumet river.....	5,300	cubic	feet	per	min.
In the Desplaines river.....	200	"	"	"	"
In the DuPage river.....	1,888	"	"	"	"
Total	7,300	"	"	"	"

The necessary quantity of water to supply the canal from Chicago to Marseilles, is 9,924 cubic feet per minute. This would show a deficiency of 2,624 cubic feet per minute, admitting that all the water could be turned into the canal. There will be some loss at the dam at

the Calumet and upon three or four miles of the feeder, and also at the DuPage dam. It would, however, be safe to calculate that there could be introduced into the canal from these rivers the following quantities, to-wit:

From the Calumet river.....4,500 cubic feet per min.
From the Desplaines..... 200 " " " "
From the DuPage.....1,600 " " " "

Total supply .....6,300 " " " "
Total supply .....9,924 " " " "

Total deficiency .....3,624 " " " "

There would not, it is true, be so large a deficiency except in *extraordinary dry seasons, and in most seasons probably none at all."*

Were the deep cut plan to be carried out at an average stage of Lake Michigan there would be an abundant supply of water drawn from the lake, not only for navigation, but for water power. There would be no locks to obstruct the passage of boats or lake vessels of good size between Chicago and Lockport. The water power at Lockport and Joliet would be greater and more permanent (at the usual stage of the lake), than it would be upon the shallow cut plan. The navigation of the canal would not be liable to interrupt from breaches in dams or embankments, and the plan is much more magnificent. Besides, if the waters of Lake Michigan do not get through this channel to the Mississippi, there is no other through which they can be conducted, and a great deal will have been said for nothing about mingling the waters of the lakes and with those of the Gulf of Mexico.

In constructing the Illinois and Michigan Canal of the dimensions *now adopted,* reference has generally been had to a future enlargement. Through all the towns and proposed town sites, as Lockport, Juliet, DuPage, Ottawa, etc., the canal is nearly double, and in some instances more than double, the ordinary width. In the deep cutting, the spoil-banks were removed a sufficient distance to leave room for the widening of the canal, and in a few instances, if any, would there be any additional damages to be paid for property. However remote the period may be when an enlargement of this

work will take place, it is certainly the part of wisdom to provide for it now. That it will be enlarged, sooner or later, there can be no doubt, and also that *the Illinois river will be so improved (an indispensable improvement) as to meet the enlarged capacity of the canal.* (Can. Com. Rep., 1900, p. 205.)

6443a Feb. 21—1843—Enactment of "An Act to provide for the completion of the I. & M. Canal and for the payment of the canal debt."

March 1—1845—Supplemental Act providing for execution by Governor of "a deed of trust to the said trustees of all the property and effects mentioned in the tenth section of said act; which said conveyance shall include the lands and lots remaining unsold, donated by the United States to the State of Illinois to aid in the completion of the said canal; to be held in trust as in said act stipulated."

"The provision of the above act having been fully complied with, a meeting was held at the American Exchange Bank of New York on the 27th day of May, 1845, and William H. Swift and David Leavitt were elected trustees by the subscribers to the loans; William H. Swift being by ballot designated as president of the board. (William H. Swift was continued as president of this board until the termination of the trust in 1871.) On the 10th day of June following, his Excellency, Governor Ford, appointed Jacob Fry trustee on behalf of the State of Illinois." (Can. Com. Rep., 1900, p. 208.)

FROM REPORT OF BOARD OF TRUSTEES, NOV. 30, 1848.

(Can. Com. Rep., 1900, p. 209.)

6444 "On the 24th of April, the board while in session at Chicago, received a report from the chief engineer, stating that the canal was so far completed as to be in navigable order, that the first boat (the General Fry) had passed over the Summit level from Lockport to Chicago on the 10th of April, and that the first boat which had passed through the entire length of the canal from La Salle to Chicago (the General Thornton owned by Isaac Hardy) had arrived at Chicago on the 23rd of April."

"As a matter of some interest connected with the arrival of this boat, it may be stated that sugar, etc.,

from New Orleans, brought by the General Thornton to Chicago was received at Buffalo (via Mackinaw) on the 30th of April, some two weeks before the first boat had reached Buffalo by the Erie Canal.

The chief engineer states that all the work upon the main line of the canal is fully completed according to the original intention of the board, except three inconsiderable items, to-wit: First, some timbers for coping the towpath wall on the Summit; second, the painting of several bridges and aqueducts; third, the excavation of some 2,500 cubic yards of earth, and the building of 300 cubic yards of work on Sections 195 and 197. The whole cost of these is stated at $3,900. The two first will be finished in the course of the winter, but the last cannot be conomically done until the water in the Illinois river is low.

"All the feeders are completed with the exception of the Calumet, which is the main feeder for the Summit level. Very unusual difficulties have been encountered in the excavation of this line, being for a great portion of the distance through a swamp, the material has been dredged out by means of steam excavations, as it was too soft to remove it by digging in the ordinary method, and hence the delay in its completion. It will be done in February and with the opening of navigation in the spring the waters of the Calumet river will be dis-
6444a charged upon the Summit level. The following table exhibits the cost of completing the canal and the feeders according to the report of the chief engineer:

Canal proper, including pumping engines, etc.		$1,159,652.44
Calumet feeder, work done	$68,397,22	
Calumet feeder to be done, estimate	23,102.78	
		91,500.00
Kankakee feeder		84,573.29
Superintendence and contingencies		66,527.06
Total cost of completion		$1,401,192.79

From Woodruff's history of Will County: 'The Project of a ship canal to connect the waters of Lake Michigan with the navigable waters of the Illinois river was first suggested during the war of 1812, by

some writer in the Niles Register in 1816. The title to a strip 20 miles wide was obtained of the Indians with a view to such work.'

From the Northwest and Chicago, by Rufus Blanchard:

Previous to 1816 the united tribes of Indians known as Ottawas, Chippewas and Pottawattomies, claimed all the land between Chicago and the mouth of the Fox river. In order to secure undisputed possession of the river between these two points, a treaty was arranged between these tribes and Ninian Edwards, William Clark and August Chonteau, Commissioners Plenipotentiary of the United States; this treaty was consummated the 24th day of Augst, 1816, and was signed by the above named Commissioners and F. Assikinock, otherwise known as Black Partridge, chief of the united tribes. The object in securing this strip was to construct a military road to facilitate the building of the proposed ship canal.

From the history of Chicago, by Bross, Book B, 1370, Chicago Public Library:

At the first session of the legislature in 1818, Governor Bond brought up the subject of a canal from Lake Michigan to the Illinois river. By an act passed July 14, 1823, a Board of Canal Commissioners was appointed, and in the autumn of that year a portion of the board, with Col. J. Post of Missouri, as chief engineer, made a tour of reconnoissance, and in the autumn of 1824, Col. R. Paul, an able engineer residing in St. Louis, was also employed. Five different routes were surveyed and estimates made of the cost of the canal. The highest estimate was $716,110.00. In the autumn of 1829 the Commissioners came to Chicago, have employed James Thompson to survey and lay off the town. His first map bears date of August 4, 1830.

The beginning of the canal was celebrated July 4, 1836, by nearly the whole City of Chicago going up to Bridgeport on the small steamer George W. Dole, towing two schooners. Dr. Wm. B. Egan delivered the address and the Hon. Theophilus W. Smith began the ditch by throwing out the first shovelful of earth.''

LOCKPORT, ILL., March 22, 1871.

Messrs. Hoyne, Horton & Hoyne,
Chicago, Ill.

GENTS:—

Yours of the 20th inst. asking for 'certified copy of survey or location of the canal in 1836 and also in 1846 in Section 29 and 30, T. 39 North, Range 14 E.' I send you herewith a diagram showing the location as you desire, certified by A. J. Matthewson, the engineer who made the survey. The change in the location from the survey of 1836 to that upon which the canal was finally constructed was made in 1845 (not in 1846) when operations were commenced under the trust and was authorized by Section 13 of 'the act to provide for the completion of the Illinois and Michigan Canal, and the payment of the canal debt,' approved February 21, 1843.

Truly yours,

WILLIAM GOODING."

(Can. Com. Rep., 1900, p. 210.)

6448a

KANKAKEE FEEDER.

(Can. Com. Rep., 1900, p. 218.)

"A navigable feeder from the Kankakee river was surveyed in 1845 and ordered constructed in 1846. The width to be 40 feet at top water line, 26 feet at bottom, 4 feet deep except at lower end where the depth was to be 5 feet. The slope to be 2 to 1 raised 3 feet above top water line—delivery 2 inches to the mile. This feeder was completed in 1848. The termination of the feeder was at a point on the canal 1,820 feet S. E. of the N. W. corner of Section 31, Tp. 34 N., R. 9 passes in a southwest course across the Du Page river where it enters Section 36, Tp. 34 N., R. 8; thence S. W. 1,056 feet to the center section line 538 feet west of the east line of the section; thence south to a point 792 feet north of the south line of Section 36; thence southeast entering Section 3-34-9 again at a point 264 feet north of its southwest corner; crossing this corner it then passes through Section 6, 4 and 5 to a point near
6449 the center of the southeast quarter of Section 9; all in Tp. 33 N., R. 9, whence a dam was constructed across

the Kankakee river and from which it received its supply of water.

The 90 foot reserve was surveyed in 1848 by Artemus J. Mathewson, a plat was made of the feeder and reserve and appears in the plat book number 2, Canal Records.

The total cost approximately very nearly to $50,000." (Can. Com. Rep., 1900, p. 219.)

FROM A LETTER BY A. J. GALLOWAY, DATED APRIL 20, 1846.

"Canal Office, Lockport,
April 20, 1846.

"*To the Board of Trustees of the Illinois and Michigan Canal.*

"GENTLEMEN:—The Secretary of our board has submitted to me the following order to which I have the honor to reply:

> 'Ordered, That the Chief Engineer be requested to report to the board the results of the surveys of the several feeders which have been made since the adjournment of the board on the 24th July last, together with the estimated cost of constructing each feeder; also that he communicate his opinion in reference to the most advantageous disposition to be made of the several feeders, and the best mode of supplying the different levels with a sufficiency of water for the purpose of navigation.'

The surveys of the feeders were commenced on the 14th of July last, and finished on the 6th day of November under the immediate direction of the principal assistant, who was aided by Messrs. Benjamin, Mathewson and Elder, Assistant Engineers, Mr. Elder, however, was not called into the service, until the surveys of the Columet had been completed.

Two feeders from the Kankakee river were surveyed; one commencing at the dam near Wilmington and terminating near lock No. 6 on the main line of canal, and the other at Goose Island, terminating at the main line nearly opposite the upper part of the town of Kankakee. The feeder from Wilmington would be received into the canal on the Joliet level, and the other upon the Dresden level; the former being 10.43 and the latter 4.44 miles in length.

The feeder from Wilmington is rendered expensive by the necessity of constructing more than a mile of it where the base of the tow path will be in the river and the outer slope will require protection, and also by the difficulty of procuring suitable earth for embankment for about three miles of the distance, and the expensive nature of the embankment across the valley of the Desplaines.

The aqueduct across the Desplaines on this line will also be an expensive structure. The estimated cost of this feeder is $159,401.52.

The lower Kankakee feeder commences at a point very favorable to the construction of a permanent dam, and the route passes over ground well adapted to the cheap and permanent construction of the work, until it reaches the Desplaines river, which must be crossed by an aqueduct that will form much the most expensive part of the work. Every part of this feeder, however, can be made permanent at a very moderate cost, the whole estimate amounting to but $48,363.68.

The feeders are all intended to be navigable and will be 40 feet wide upon the surface of the water, 26 feet wide upon the bottom, and 4 feet deep, except lower Kankakee feeder, in which the water is intended to be 5 feet deep. The slopes of the banks will be two to one, and they will be raised 7 feet above bottom or 3 feet above the top water line. A declivity of 2 inches per mile is given on each of the feeder." (Canal Com. Rep., 1900, p. 219.)

FROM E. W. WILLARD'S HISTORY, IN REPORT OF 1900:

"The Kankakee feeder has not been used for several years. The aqueduct that carried the water over the Desplaines and Du Page rivers has long since gone to decay. There are, however, over 125 acres of good land used for this feeder that now belongs to the State of Illinois." (Canal Com. Rep., 1900, p. 220.)

6454 "In the years 1847 and 1848 Artemus J. Mathewson, a surveyors and engineer, under the authority and direction of the Canal Trustees, surveyed and marked the lines of the 90-foot strip on each side of the canal

from one end thereof to the other and prepared and filed in the office of the Board of Trustees, maps and profiles of said survey." (Can. Com. Rep., 1900, p. 229.)

6457 "The Mathewson survey of 1847 and 1848 gave the width of the canal and the lines of the reverse the entire length of the canal. See plat books 1, 2 and 3 canal records. From La Salle to Joliet the towing path is located on the south side of the canal, and from Joliet to Bridgeport it is on the north side. From Bridgeport to the center of Section 21, Tp. 14 N., R. 14 East, there was reserved from sale 16 feet in width on the south side of the Chicago river for towing purposes, and for a long time this reserve was used for that purpose. The State of Illinois secured title to the canal, its feeders and reserved land through Section 16, known as school sections, Ottawa Center, Marseilles, Joliet, Lemont and Canalport section (30-39-14), by the congressional acts of 1822, 1827, and 1831, and the legislative enactments of 1823, 1829, 1831, 1836, 1837 and 1839. See also La Salle County, Will County and Canal Records 1836 to 1845." (Can. Com. Rep., 1900, p. 235.)

4684 Counsel for defendant then offered in evidence a volume containing the issues of the Chicago American published in the years 1835 and 1836, in Chicago, Illinois; a weekly paper; from the issue of May 14, 1836, of this paper, an advertisement appearing therein and reading as follows: The heading of the advertisement is:

"1836

Western Transportation.

The New York and Oswego Line.

The proprietors of the above line will be prepared on the opening of navigation to forward property from New York by the Eckford Line of tow-boats to Albany daily; thence by the above line of canal boats daily to Oswego, and thence by steamboats and vessels of the first class to any point on Lake Ontario and via the Welland Canal to all ports on the upper lakes. William Sabine having connected himself with a line of transportation wagons from Chicago to the head of Navigation on the Illinois River will forward goods consigned

4685 to him by the above line to any point on the Illinois River or St. Louis."

There is a date under that: "March 28th."

Then signatures:

"R. J. Van Dewater, New York.
Johnston Howlett & Co., Foot of State Street, Albany, Up Stairs.
Henry Fitzhugh, Oswego, (Proproprietors)

Refer to A. B. Meech and Co., Herriman and Nash, Doremus, Suydam and Nixon, and S. Grosvenor and Co. New York: Meech, Jackson and Co., Albany; Sulter Livingston and Co., Utica; B. B. Hyde and Co., Rome; Noble and Palmer, Manlius; Dan'l Spencer and Co., Syracuse; Buckley and Clark, Sacketts Harbour; J. W. Fuller and Co., Alexandria Bay; White and Hooker, Morristown; R. T. Sec. and Co., Cape Vincent; E. B. Allen and O. Bacon, Ogdensburgh; O. Smith and O. Hathaway, Youngstown; J. Nevins, Niagara, U. C.; J. Brown and Co. and S. Barnham, Toronto, U. C.; Truax and Phillips, Kingston, U. C.; E. P. and D. Smith, W. Barnham, Port Hope; A. Land and D. C. Gunn, Hamilton, U. C.; H. and S. Jones, Brockville, U. C.; Tracy and Harrison, Erie, Penn.; T. Richmond and Co., Richmond, Ohio; John E. Lyon, Cleveland; J. W. and T. Wickham and J. Fleeharty, Huron, Ohio; M. L. Babcock and Co., Sandusky; John W. Smith, Perrysburg; John L. Whiting, Detroit.

William Sabine, Chicago.

R. J. VanDewater, agent,
Corner of Water and Broad Sts., New York."

4686 Counsel for defendant then offered:

"The same advertisement appearing in the issue of May 21st, 1836, of this same paper; and also in the issue of May 28th, 1836, of this same paper."

Counsel for defendant then produced another volume containing the issues of the Daily Chicago American published in the year 1839; and offered in evidence from the issue of this paper published September 14, 1839, the following advertisement:

"Notice to Travelers.

The traveling public are informed that the mail stage from Chicago to Galena leaves the general stage office at Chicago every Sunday, Tuesday and Thursday and arrives at Galena every Monday, Wednesday and Friday, making it through in two days, and fare reduced to $12.50 for a distance of 156 miles. Fare from Rockford to Chicago $6. Mail stages leave for Dixon's Ferry
4687 every Monday, Wednesday and Friday, and for Naperville, Warrenville, Geneva and St. Charles same days and return every Tuesday, Thursday and Saturday. From St. Charles the mail line is continued on direct, three trips a week, for De Kalb, Court House, then to Oregon City and Buffalo Grove and there connects with the Peoria and Galena Mail stage, making the line direct to Galena. The mail stage for Milwaukee leaves the general stage office at Chicago every Sunday, Tuesday and Thursday and returns every alternate day. Last, though not least, a daily mail stage leaves the above named office for Peoria and makes the trip from Chicago to Peoria, 170 miles in from 30 to 35 hours, by steamboats and stages—stages from Chicago to Peru and steamboat from Peru to Peoria. Fare, whole distance, $11, and found on board the boat. This line passes through Lockport, Juliet, Ottawa and Utica to Peru.

Extras furnished at all times for nine seats at regular fare. The proprietors will spare no pains to make the traveler comfortable, and safe, and hope that if they do justice to the public, by the public they will be supported.

(Signed) E. C. STOWELL,
Agent for the Proprietors.'

Dated, 'September 4th.'

4688 It is stipulated by counsel that the same advertisement as last read appears in each issue of the Daily Chicago American published after September 14, 1839, up to and including the issue of November 9, 1839.

AT A SUPREME COURT, Begun and held at Springfield on Tuesday, the Fifth day of October in the year of our Lord One Thousand Nine Hundred and Nine, within and for the State of Illinois.

Present:

WILLIAM M. FARMER, *Chief Justice,*
JAMES H. CARTWRIGHT, *Justice,*
ALONZO K. VICKERS, *Justice,*
FRANK K. DUNN, *Justice,*
JOHN P. HAND, *Justice,*
ORRIN N. CARTER, *Justice,*
GEORGE A. COOKE, *Justice,*
WILLIAM H. STEAD, *Attorney General,*
WARREN C. MURRAY, *Bailiff.*

Attest:

J. MCCAN DAVIS, *Clerk.*

Be It Remembered, that afterwards, to-wit, on the 26th day of October, 1909, the opinion of the Court was filed in the words and figures following to-wit:

People *ex rel.* C. S. Deneen, *Appellant,*
No. 6242 *vs.*
Economy Light & Power Co.
} Error to Appeal from Circuit Court, Grundy.

Docket No. 6242—Agenda 1—June, 1909.

People of Illinois *ex rel.* Charles S. Deneen and William H. Stead, Appellant *vs.* Economy Light and Power Co., Appellee.

Mr. JUSTICE VICKERS delivered the opinion of the court:

This is a direct appeal to this court from a decree of the circuit court of Grundy county dismissing for want of equity an information in the nature of a bill in equity filed by the Attorney General on behalf of the People, on the relation of Charles S. Deneen, Governor of the State of Illinois, against the Economy Light and Power Company, to restrain said company from erecting a dam across the Desplaines river and to cause the removal of that portion of the dam already constructed, and to prevent other injuries to the prop-

erty of the State which it is alleged will result from the construction and maintenance of said dam.

Appellant bases its claim to relief on three propositions, as follows: (1) That the State of Illinois owns the bed of the river at the point where it is proposed to build said dam; (2) that the Desplaines river is a navigable stream, and that the proposed dam would constitute an obstruction to navigation; (3) that certain contracts executed by the commissioners of the Illinois and Michigan canal, under which appellee claims certain rights in connection with the construction of said dam, are void, and that no rights were acquired by or can be asserted under said contracts.

It is conceded by appellee that if the State of Illinois owns the fee in the bed of the Desplaines river at the point where the proposed dam is to be located, or if said river is a navigable stream at that point, appellee has no right to build the dam. Whether the same result would follow if the instruments referred to in the third proposition were held invalid is one of the controverted questions between the parties. The questions involved in each of appellant's propositions arise out of facts which have but little, if any, bearing on the other contentions. It will therefore conduce to a clearer understanding to examine these propositions separately, in the light of the facts applicable to each.

THE TITLE OF THE STATE TO BED OF THE RIVER.—The validity of appellant's claim of title to the bed of the river at the point where the dam is located depends upon the construction of certain statutes passed by the legislature in relation to the Illinois and Michigan canal. The consideration of the legal questions involved in appellant's claim of title to the bed of the river will be facilitated and the ultimate result clarified by a brief review of the history of the Illinois and Michigan canal prior to the passage of the particular statute a construction of which is involved in this question.

The possibility of connecting the waters of Lake Michigan with the Illinois river by means of an artificial channel, thence through the Mississippi river to the Gulf of Mexico, thus establishing a continuous waterway for commerce from the lakes on the north to the gulf on the south, was at a very early time appreciated and its consummation cherished by the early traders and explorers as a work of first importance, both from a commercial and military standpoint. The portage between the south branch of the Chicago river and the Desplaines was only a few miles, and it was confidently be-

lieved that these two streams could be connected by an artificial channel at a cost that would be trifling in comparison with the commercial benefits that were expected to result. Experience has shown, however, that the cost of the canal, first and last, has been nearly twenty times the original estimate and that its practical benefits have fallen much below its promoters' expectations. The subject of constructing the canal was first brought to the attention of the Federal Congress in 1801 by Albert Gallatin, in a report recommending its construction by the general government. In 1816 a government survey was made of the proposed route, and after Illinois was admitted into the Union the attention of the new State was turned to the proposed connecting waterway. In 1822 Congress passed an act authorizing the State of Illinois to survey and mark through the public lands of the United States the route of a canal connecting the Illinois river with the southern bend of Lake Michigan, and vesting in the State the perpetual use of a strip of land ninety feet wide on each side of said canal for canal purposes, subject to certain conditions which have either been complied with or waived by subsequent acts and therefore need not be stated. (Stead's Canal Laws, p. 1.)

During an extra session of the Illinois legislature, in 1826, a memorial was addressed to the Congress of the United States in which the great advantages, both to the nation and the State, of the proposed canal were eloquently set forth and the liberality of Congress was appealed to to make a grant of public lands to aid the State "to commence and complete this great and useful work." In this memorial it was stated that "your memorialists have caused the route to be explored and estimates to be made of the probable expense of the work, from which it appears that the cost of constructing the canal will not be less than $600,000 and may possibly amount to $700,000." The effect of this memorial was to attract the attention and awaken the generous patronage of the Federal Congress, and on March 2, 1827, an act was passed granting to the State of Illinois, for the purposes stated, a quantity of land equal to one-half of five sections in width on each side of said canal, from one end thereof to the other. The lands thus granted to the State, when selected and set apart, were found to contain approximately 300,000 acres, which were subject to the disposal of the State legislature "for the purposes aforesaid and no other." In 1829 the legislature passed an act authorizing the appointment of

a board of canal commissioners to explore, examine, fix and determine the route of the canal, and dispose, by sale, of the lands and lots and commerce the work. Under this act Gov. Edwards appointed Charles Dunn, Dr. Gersham Jayne and Edmond Roberts as commissioners. For lack of funds the commissioners were able to accomplish but little. February 15, 1831, an amendatory act was passed. Under the provisions of these two acts the board of commissioners laid out the towns of Chicago and Ottawa and caused a new survey and estimate to be made by engineer Bucklin, whose estimate showed that the canal, instead of costing $600,000 or $700,000, as the legislature had stated in its memorial, would cost $4,043,386.50,—and this estimate proved to be too low by half. In view of the unexpected increase in the cost of the canal the plan of substituting a railroad for the canal was favorably considered for a time, and with this in view a survey and estimate for the railroad were made, a law passed abolishing the office of canal commissioners and the consent of the Federal government to use the land granted in constructing a railroad instead of a canal was obtained.

In 1835 the canal proposition was again taken up and an act passed authorizing the Governor to negotiate a loan, not exceeding $500,000, solely on the pledge of the canal lands and tolls. Certificates were to be issued, called "Illinois and Michigan canal stock," which were to be sold at not less than face value. This effort to raise money proved a failure. Ex-Gov. Coles, who then resided at Philadelphia, was appointed agent of the State to negotiate the loan, and in April, 1835, he wrote that capitalists were unwilling to take the stock certificates because they were not based upon the faith of the State. To obviate the objections thus raised the act of January 9, 1836, was passed, which repealed the act of 1835 and authorized the same loan of $500,000 on the credit of the State, which was irrevocably pledged for the payment of both principal and interest. The money thus borrowed, together with the proceeds of canal lands and lots, constituted a fund with which the actual construction of the canal was commenced, and on July 4, 1836, ground was first broken for the canal.

Two general plans of construction had been estimated and recommended. One, which is described as the "deep-cut" plan, provided for a channel six feet below the water level of Lake Michigan, and contemplated the maintenance of a channel sixty feet wide at the top and forty feet at the bottom and

a depth of six feet, supplied by the direct flowage of water from Lake Michigan. The cost of the canal under the deep-cut plan was estimated at more than $10,000,000. This excess in cost over the available funds led to the consideration and adoption of the "shallow-cut" plan, which provided for a channel twelve feet above the water level of Lake Michigan, and contemplated to supply the channel with water by feeders from the Calumet or Desplaines river. Up to the first of January, 1839, the gross expenditures on the canal derived from loans and the sale of lands and lots amounted to $1,400,000. All of the canal, except about twenty-three miles between Dresden and Marseilles, was under contract, and the jobs let were roughly estimated at $7,500,000. In this situation the legislature directed the commissioners to borrow $300,000 and the Governor to make a further loan by the sale of $4,000,000 of State bonds. These bonds were disposed of to irresponsible parties, some of whom paid a portion, others practically nothing, so that the State lost several hundred thousand dollars in the sale of these bonds.

On February 26, 1839, the General Assembly passed an act which is of special importance in this connection, since it is upon this act appellant rests its claim of title to the bed of the river at the point where the proposed dam is located. Section 1 of the act of 1839 provided that the sales of canal lands and town lots heretofore authorized by law shall be regulated as follows: Under the title of "conditions of sales" it was provided: "In all sales of lands and lots under the provisions of this act the following conditions shall be annexed and shall compose part of the contract." By condition 9 it is provided as follows: "That no stream of water passing through the canal lands shall pass by the sale so as to deprive the State from the use of such water, if necessary to supply the canal, without charge for the same." Condition 11 is as follows: "Lands situated upon streams which have been meandered by the surveys of public lands of the United States shall be considered as bounded by the lines of those surveys and not by the stream." At the time this act was passed the State of Illinois owned the lands on both sides of the Desplaines river where the dam in question is located. If the title to this land had passed out of the State under the act of 1839 there would be much force in appellant's contention that the riparian owners would only obtain title to that portion of land within the meander lines, the effect of which would be to reserve the title to the bed of

the stream in all odd numbered sections bordering upon either side of the river in the State, and this, as we understand, is appellant's position.

The proposed dam is located in the south-east quarter of section 25, township 34, range 8, east of the third principal meridian, in Grundy county. Section 25 was one of the sections embraced in the government grant of 1827. Both parties concede that the title to the bed of the stream passed to the State under the government grant. The point at issue between the parties is whether such title passed out of the State when it sold said south-east quarter of section 25, or whether the grantee only took title to the meander line, as is provided by condition 11 in the act of 1839.

Returning again to the further history of the canal, we find that, owing to the panic of 1837 and the general shrinkage of values, the State was seriously embarrassed and its credit impaired. At this time $1,000,000 of State bonds bearing six per cent. interest were sold in London for eighty-five cents on the dollar. In 1841 the State defaulted in the payment of interest on her public debt and her financial embarrassment became alarming. The situation was greatly aggravated by the collapse of the State banks, in 1842. The State refused to take State bank paper for taxes, and the taxpayers did not have coin or the means of procuring it. There was a general stagnation in business and values rapidly declined. The State at that time owed $14,000,000, on which it was unable to pay interest. Repudiation was openly advocated, and for a time "the fair name of Illinois became freely associated with dishonor." There was a crisis in the affairs of the State as well as in the affairs of the projected canal. Strange as it may seem, the Illinois and Michigan canal, in aid of which the credit of the State had been pulled down, was now confidently looked to as the only means of lifting it up. It was argued the advantages and facilities to be afforded by it would cause immigrants and wealth to pour into the State. To meet the dire situation and to insure the completion of the canal, Justin Butterfield, of Chicago, first suggested the idea of inducing the holders of canal bonds to advance the money for its completion upon the pledge of the canal, its lands and revenues to the bondholders in the nature of a first mortgage, and Gov. Ford recommended the adoption of this plan in his first message to the General Assembly. Accordingly, on February 21, 1843, the legislature passed an act authorizing the Governor to negotiate a

loan of $1,600,000 solely on the credit and pledge of the canal property, its tolls, revenues and lands, for a term of six years, bearing six per cent. interest. Said act provided that the holders of canal bonds and other evidence of indebtedness of the State, for the purpose of aiding in the construction of the canal, should be first entitled to subscribe for said loan in proportion to the amount held by the several creditors. It was provided in said act that a board of canal trustees should be appointed, to be known and designated as the "Board of Trustees of Illinois and Michigan Canal," one of whom should be appointed by the Governor and the other two elected or appointed by the subscribers to the said loan. Section 10 of said act provided that for the purpose of placing in the hands of the trustees full and ample security for the payment of said loan, and the interest thereon, and for the purpose of securing a preference in the payment of the debts held by the persons who would subscribe for the new loan, the "State does hereby irrevocably grant to the said board of trustees of the Illinois and Michigan canal the bed of the said Illinois and Michigan canal and the land over which the same passes, including its banks, margins, towpaths, feeders, basins, right of way, locks, dams, water power, structures, stone excavated and stone material quarried, purchased, procured or collected for its construction, and all the property, right, title and interest of the State of, in and to the said canal, with all the hereditaments and appurtenances thereunto belonging or in anywise appertaining, and also all the remaining lands and lots belonging to the said canal then or which hereafter may be given, granted or donated by the general government to the State to aid in the construction of said canal, and the buildings and erections belonging to the State thereon situated; the said board of trustees to have, hold, possess and enjoy the same as fully and absolutely, in all respects, as the State now can or hereafter could do, for the uses, purposes and trusts hereinafter mentioned." The only property excepted from this act were "all canal lands and lots heretofore sold by the board of commissioners upon which moneys are now due or may hereafter become due," which were reserved to the State. After considerable delay and difficulty the creditors of the State finally advanced $1,600,000 on the faith of the act of 1843, and the final completion of the canal was at last an assured fact.

On June 26, 1845, Thomas Ford, as Governor of the State of Illinois, executed a deed to William H. Swift, David Leavitt

and Jacob Fry, trustees of the Illinois and Michigan canal, under authority vested in him by section 21 of the act of 1843, conveying to said trustees, in the language of said act, all of the canal property which the State then owned, including "the lands and lots remaining unsold, donated by the United States to the State of Illinois to aid in the completion of the said canal, * * * to have, hold and enjoy the said property, with the right of controlling, managing, selling and disposing of the same." There is no restriction in the act itself, or in the deed made by the Governor under it, which lends support to appellant's claim that the bed of the river was reserved to the State.

On October 22, 1860, the canal trustees sold and conveyed to Charles E. Boyer, for a consideration of $1556, 196.61 acres of land in section 25, township 34, range 8, in Grundy county, and by *mesne* conveyances the title of said tract is now vested in appellee. The proposed dam is located wholly on this tract. Conveyance to Boyer was made by the canal trustees "under authority vested in said board by an act of the legislature of the State of Illinois of February 21, 1843, entitled 'An act to provide for the completion of the Illinois and Michigan canal and for the payment of the canal debt.'" which authority is recited in the fact of the deed itself. The granting clause of said deed is as follows: "In consideration thereof and the premises, said board of trustees of the Illinois and Michigan canal has granted, bargained and sold, and by these presents do grant, bargain and sell, to the said Charles E. Boyer, the said tract of land above designated and described." The following is the *habendum* clause of the said deed: "To have and to hold the same, together with the rights, privileges, immunities and appurtenances thereunto belonging, unto the said Charles E. Boyer, his heirs and assigns forever." There are no exceptions, limitations, reservations or conditions in this deed. If the title to the bed of the stream did not pass by this deed it is because the trustees had no power to convey it.

Under the government grant of 1827 the State obtained title to all of section 25, including the bed of the river through that section. By the act of 1843, and the deed of the Governor made thereunder, the title to all of the unsold portion of said section passed to the trustees of the Illinois and Michigan canal, and by their deed the title to the southeast quarter of said section on which the dam is located was vested in Boyer, and his title, as we have seen, now rests in the appel-

lee. Under well established rules of law these several conveyances carried the title to the bed of the stream, in the absence of any language clearly denoting an intention of stopping at the edge of the river. (*Braxon* v. *Bressler,* 64 Ill. 488; *Davenport Bridge Railway Co.* v. *Johnson,* 188 id. 472.) There is no difference in the application of this rule between navigable water-courses and those which are not navigable. In grants upon navigable waters above tide waters the riparian owner takes title to the thread of the stream, subject to an easement in the public for the purpose of navigation, while as to the waters not navigable the title to the bed of the stream passes absolutely, free from any burdens in favor of the public. (*Washington Ice Co.* v. *Shortall,* 101 Ill. 46.) Where a riparian proprietor owns the land on both sides of a river, he is the owner of the whole of the bed of the stream to the extent of the length of his lands upon it. (Angell on Water-courses, sec. 5.) This is the rule of the common law, which has been adopted in this State and applied by this court to the Mississippi river in *Middleton* v. *Pritchard,* 3 Scam. 510; to the Rock river in *Braxon* v. *Bressler, supra;* to the Chicago river in *City of Chicago* v. *McGinn,* 51 Ill. 266; to the Calumet river in *Washington Ice Co.* v. *Shortall, supra;* and to the Desplaines river in *Board of Trustees* v. *Haven,* 5 Gilm. 548, and *Druley* v. *Adam,* 102 Ill. 177. The general rule is, that when riparian estates are conveyed the owner may reserve the land under water; but the general presumption is that the purchaser's title extends as far as the grantor owns, in both tidal and fresh waters. (Gould on Waters, sec. 195, and cases there cited.) There is nothing in any of the conveyances concerning the south-east quarter of section 25 to indicate an intention to reserve that portion of said land in the bed of the Desplaines river. On the contrary, the language of the act of 1843, and the deed of the Governor made in pursuance thereof, is so broad and comprehensive as to preclude the State from asserting title to the bed of this stream. Anything found in the act of 1839 manifesting an intention of the State at that time to limit sales of canal lands within the meander lines of the Desplaines river must be held inconsistent with the comprehensive language of the act of 1843 and superseded thereby. We do not, however, mean to be understood as holding that the act of 1839 was superseded in its entirety by the act of 1843, but we do hold that as to sales made under the act of 1843 to procure money with which to pay debts created thereunder, such

sales were not affected by the limitations in the act of 1839. After the trust created by the act of 1843 was executed and the debts for which the canal properties were pledged under that act were paid and the canal properties turned back to the State in accordance with section 9 of the act of 1843, any subsequent sales of canal lands would not be controlled by the act of 1843. The record shows that at the time the lands on which the dam in question is located were sold the debt was not fully paid, and the deed executed by the canal trustees shows by its recitals that it was made under the power conferred by the act of 1843. Deeds made by the canal trustees under the act of 1843 to lands bordering on the Desplaines river conveyed the title to the purchaser to the thread of the stream.

Appellant also contends that since the undisputed evidence shows that the Desplaines river was meandered by the government surveyors, such meander line is the boundary of riparian proprietors. A meander line is not a boundary line, but is designed to point out the sinuosities of the bank or shore and a means of ascertaining the quantity of land in the fraction which is to be paid for by the purchaser. (*Whitaker* v. *McBridge*, 107 U. S. 510; *Albany Railroad Bridge Co.* v. *People*, 197 Ill., 199.) An exception to this general rule seems to be recognized where the meander line is run and monuments are erected, but in the case at bar the evidence fails to show that any monuments were erected on the meander line, hence this case falls within the general rule and not within the exception. The State of Illinois is not the owner of the bed of the Desplaines river at the place where the proposed dam is located.

The Navigability of the Desplaines River.—The question which has received the most exhaustive treatment by counsel relates to the navigability of the Desplaines river. The evidence introduced upon this question fills more than one thousand printed pages in the abstract, and to its discussion counsel have devoted several hundred pages of their briefs. If the dismissal of the bill by the court below had been without prejudice to the right of the State to renew its application for an injunction such action on the part of the court below might be sustained because of the utter failure of appellant to prove that the construction of the proposed dam will be an obstruction to the present navigation of the river. There is no proof that the river is now being used as a public highway for commerce. On the contrary, the evidence not

only shows that the river is not being so used, but it shows affirmatively that, owing to the presence of numerous other dams and some fifty or more bridges which span the river, it would be impossible, under existing conditions, to navigate the same. There being at present no navigation whatever upon the river, obviously the dam in question cannot be said to be an obstruction to navigation that has no existence in fact. But the decree of the court below dismissed the bill for want of equity, without reserving any right to the State to renew this application for relief on the ground that the dam in question was being erected in a navigable stream, and rendered a final decree based on the finding that the river is not navigable, settling this question not only for the present but for all time to come, so far, at least, as the parties bound by this decree are concerned. We regard the question, therefore, as properly presented for our consideration on its merits.

The Desplaines river has its source in the south-eastern part of Wisconsin, and flows in a southerly direction, almost parallel with the western shore of Lake Michigan, through the counties of Lake and Cook, in this State, until it reaches a point nearly opposite the western end of Forty-seventh street, in the city of Chicago, where the river curves and takes a south-westerly course, passing the cities of Lockport and Joliet, and thence to a point in Grundy county, where it unites with the Kankakee river, thus forming the Illinois river. The entire length of the river is something over one hundred miles, but in determining the question of its navigability we will have no occasion to consider that portion of the river above Riverside, since it is not contended that that portion of the river is or ever has been navigable. The maintenance of the charge in the bill that the river is a navigable stream does not impose on appellant the burden of showing that the stream was navigable in its entirety, (*Schulte* v. *Warren*, 218 Ill. 108,) or that the navigable portion of such stream was open for use all the year round. (*Pierpont* v. *Lovelace*, 72 N. Y. 211; *Burke Co.* v. *Catawba Lumber Co.* 116 N. C. 731.) Appellant contends, and appellee seems to concede, that if it is established that the Desplaines river is navigable from Lockport to its mouth the decree of the circuit court should be reversed, even though the court might be of the opinion that the river was not navigable at any other place. We have no doubt of the correctness of this proposition as an abstract statement of the law. We will therefore

confine our consideration of this question primarily to that stretch of the river, about nineteen and one-half miles in length, extending from Lockport to the mouth of the river.

The evidence shows that there is quite a fall in certain portions of the river between these two points. From Lockport to Joliet there is a fall of thirty feet in a distance of four and one-half miles, and from dam No. 1 in Joliet to the head of Patterson's island there is a fall of twenty-one feet in three and one-half miles. Then there is a stretch of about five miles, known as Lake Joliet, in which there is practically no fall. Below the foot of Lake Joliet the river divides and forms what is called Treat's island. Going down the river the main channel is on the left of the island, and there is a fall of nine and one-half feet in one mile. After passing Treat's island the river is again united and forms a pool or lake about one mile long in which there is very little fall. Going down the river the next stretch, at a point called Smith's bridge there is a fall of about two and seven-tenths feet in one mile. Passing the rapids at Smith's bridge another pool is encountered, called Lake DuPage, where there is a fall of two feet in three and one-half miles. In the last half mile above the mouth of the river there is a fall of three and one-half feet. It is across the lower end of this stretch that the proposed dam is located. The bottom of the river from Lockport to the dam in question, with the exception of that portion under Lake Joliet, is covered with a large number of bowlders. The bottom of Lake Joliet is soft. The evidence shows that these bowlders are of various sizes, some of them between two and three feet in diameter. Some of them are covered entirely with water, while others project slightly above the surface of the water. It is also shown that in going down the river in a skiff or any kind of boat there is great danger of coming in contact with these bowlders. The current is so strong that it is not possible to row a boat up stream over these rapids. In addition to the natural barriers already spoken of, the evidence shows that the stream is tortuous and the channel very narrow at places. The slopes in the river already given do not represent the greatest fall that can be found in this stretch. The evidence shows that there is near the head of Treat's island a fall of seventeen feet to the mile, and near the foot the slope is eighteen feet to the mile, and in the right-hand channel opposite Treat's island there is a space of five hundred feet in which the fall is fifty feet to the mile, and if shorter distances are taken even

greater slopes than these will be found to exist. At one place near the mouth of the river there is a fall for three or four hundred feet of twenty feet to the mile. Between the mouth of the river and Lockport there are thirteen bridges across the river, none of which have draws to permit the passage of boats, if such passage were otherwise possible. Two of these bridges are railroad bridges, and all of them are permanent steel structures. Above Lockport there are some forty other bridges across the stream, constructed for steam or electric railroads and for wagons. The width of the river varies greatly. At some places it is not more than sixty feet wide, while in the widest place in Lake Joliet it is over one thousand feet wide. The evidence shows that the depth of water in the river varies considerably in different places and also at different times in the same places. A chart showing the gauge readings at Riverside, a point twenty-eight miles above Joliet, shows the number of days in each year during which the river was dry at this point, which indicates that there were from twenty-four days in 1890 to two hundred and thirteen days in 1895 during which the river was dry at this point. This chart also shows the number of days during each of these years when there was a discharge of less than six inches of water at Riverside, the result of which is, totaling the number of dry days and the days showing less than a six-inch discharge, that there were from one hundred and twenty days in 1888 to three hundred days in 1901 when the river was either dry or showed less than six inches of water at Riverside. The depth of the river during the balance of the year is not shown on this chart. These gauge readings also show that the dry or low periods did not occur during the same time in each year. Every month in the year is represented several times during the years covered by this chart, from which the conclusion is drawn that there were no regular periods when a given stage of water could be safely expected.

We refer to the readings on the Riverside gauge, not because of their bearing on the question of navigability at that point, but for the reason that they tend to show the natural volume of water in the channel above the points where the volume is increased by the additions made by the Illinois and Michigan canal and the drainage channel, which added from 250,000 to 400,000 cubic feet of water per minute to the river below the point of connection.

Appellant strongly contends that the rights of appellee as

riparian owner are to be determined with reference to the conditions that exist since the deepening of the Illinois and Michigan canal and the construction of the sanitary district channel, by means of which the volume of water in the Desplaines river has been greatly increased. It is argued that the navigability of the river is to be determined with reference to the changed condition and not as the stream existed in a state of nature. Appellant's position, as we understand it, is this: Assuming the stream to be unnavigable in its natural condition, the State may by artificial means so change the stream as to make it navigable and thus destroy the vested property rights of riparian owners upon the said stream. This position is untenable. The property rights of riparian owners in the bed of an unnavigable stream are as sacred as any other property right, and such owners cannot be deprived of those rights, without compensation, by artificial additions to the waters of the stream whereby it is rendeerd navigable. To hold that the State can by artificial means make a stream navigable which in a state of nature was not navigable, and thereby deprive riparian owners of their property rights in the bed of the stream, is simply to hold that private property may be taken or damaged for public use without compensation.

The contention of appellant upon this question is contrary to the authorities. In *Thunder Bay River Booming Co.* v. *Speechly,* 31 Mich. 36, the court, speaking by Judge Cooley, upon this question said: "No such inference is warranted by the decisions. The highway they recognized is one *sui generis* and in which the public rights spring from peculiar facts. It is a public highway by nature, but one which is such only periodically and while the natural condition permits of a public use. * * * But at periods when there is no highway at all there is no ground for asserting a right to create a highway by means which appropriate or destroy private rights. The doctrine that this may be done without compensation to parties injured is at war with all our ideas of property and of constitutional rights. The most that can be said of this stream during the seasons of low water is, that it is capable of being made occasionally navigable by appropriating for the purpose the water to the natural flow of which the riparian proprietors are entitled. It is highly probable, in view of the large interests which are concerned in the floatage, that the general public good would be subserved by so doing, but this fact can have no bearing upon the legal ques-

tion. It is often the case that the public good would be subserved by forcing a public way through private possessions, but it neither should be nor can be done, under any circumstances, without observing the only condition on which it can be permitted in constitutional government, namely, that the private proprietor be compensated for the value which he surrenders to the public."

In *Druley* v. *Adam, supra,* this court, in speaking of the added volume of water to which the proprietors of the Haven dam were entitled by reason of the deep cut in the Illinois and Michigan canal, said (p. 206): "It may be quite true that appellee has now more water than he had before the deepening of the Summit level, and that contrasting his condition now with his condition then he is not injured, but he is entitled, by virtue of his position as lower proprietor, as has been shown, to the benefit of all improvements whereby the flow of the water in the river is increased, and this property right cannot be taken from him without his consent. The right which the lower riparian proprietor has to avail himself of all benefits resulting from improvements by upper riparian proprietors is obviously a property right growing out of the nature and necessities of flowing water and his position upon the stream, and of which, therefore, he can no more be deprived, without his consent, than of any other property right."

The rule that the navigability of the stream is to be determined with reference to its natural condition is supported by the numerous other authorities: *Hall* v. *Lacy,* 3 Grant's Cas. 264; *Carter* v. *Thurston,* 58 N. H. 104; *Ellis* v. *Collee County,* 70 Ala. 490; *Straton* v. *Currier,* 81 Me. 497; *United States* v. *Rio Grande Dam and Irrigation Co.* 174 U. S. 690; *In re Ball,* 10 Wall. 557; *In re Montello,* 20 id. 431.

We are aware that there is a line of cases which at first blush may appear to be in conflict with the rule laid down in the authorities above cited. While the rule is well founded, both upon reason and authority, that a stream not navigable in its natural condition cannot be made so by artificial means, so as to deprive riparion owners of vested rights without compensation, it is equally well established that a stream which is, in fact, navigable in its natural state may be improved for the purpose of enlarging its usefulness, and the public will have a right to the enjoyment of the easement in its enlarged condition. It is to this principle that the cases of *Schulte* v. *Warren, supra,* and *Mendota Club* v. *Anderson,*

101 Wis., 479, and other like cases relied on by appellant, are to be referred. There is nothing in this line of decisions that is in conflict with the rule stated above or the authorities cited in support thereof. In view of the constitutional inhibition against the taking or damaging of private property for public use without compensation, the rule must, of necessity, be that the State cannot directly by its own act or indirectly through the act of any of its agents change an unnavigable stream to one that is navigable, and thereby destroy or damage the private property rights of adjacent owners, without making compensation. The State can no more establish a waterway over private property without compensating the owners than it can build a railroad or a public highway over farm lands without paying for the right of way and all damages to property not taken. The same constitutional provision that protects property rights in real estate above the water line of an unnavigable stream extends to and protects that which is below the water, guaranteeing the same full measure of enjoyment to the owner in the one case as well as in the other. The view is supported by the decision of this court in *City of Chicago* v. *Laughlin*, 49 Ill. 172, where, on page 177 of the opinion, the following language is used; "It would be monstrous that the city should, at pleasure, make changes in this stream so as to render buildings on the wharves an obstruction and then require their removal without compensation. Such power would be more vast and absolute than can be exercised by the State itself. The city government is created and has its power delegated for the better protection of individual rights, and not that they may be disregarded or destroyed."

The widening or deepening of navigable streams, or the improvement of those which are not navigable so that they may become so, or the construction or improvement of harbors, are works of a public nature, conferring benefits on the public at large. Such improvements may be made and paid for out of the general treasury, from funds raised by taxation. The Supreme Court of the United States, in *County of Mobile* v. *Kimball*, 102 U. S., 691, decided that the State might authorize a county to improve a public harbor, to be paid for by bonds which were ultimately to be paid by general taxation upon property of the county. (See Page & Jones on Taxation by Assessment, sec. 360.) But under the law of this State as laid down in *City of Chicago* v. *Law*, 144 Ill. 569, a navigable stream cannot be improved and the cost

thereof levied by a special assessment upon the real estate fronting upon such water-course. In that case an attempt was made by the city of Chicago to improve the south branch of the Chicago river and to charge the cost of such improvement by a special assessment against the lands and lots fronting on the same, and this court, in denying the power of the State to make such improvement by a special assessment, on pages 576 and 577, said: "The river is a navigable stream of the United States. It connects with Lake Michigan, and by means of the lake with the country at large. The Federal government has assumed jurisdiction over it, and expended money, as appears from the admitted facts, for its improvement. It is one of the channels over which the commerce of the country passes, and this improvement was instituted for the purpose of increasing its power as one of the navigable streams of the country. It was undertaken in the interest of the commerce of the country. Was it ever intended that a few land owners bordering on one of the navigable streams of the country should be compelled to pay for an entire improvement in a river, the object of which is to benefit the public at large rather than the locality where the improvement is made? Here the contemplated improvement was one to widen the river in order that boats and vessels might pass up and down the river with greater facility,—one calculated to increase the navigable qualities of the river,—an enterprise wholly public in its nature. If one of the cities located on the banks of the Mississippi river should undertake to remove obstructions from that navigable stream of water to enable boats to run up and down the river with greater facility and pay for the improvement by special assessment on property fronting on the river, it would not, we apprehend, be contended that an assessment of that character could be sustained under the provisions of the statute above cited; and yet there is no substantial difference between the supposed case and the one under consideration. The proposed improvement has none of the elments of a local improvement, such as incorporated towns and cities have been in the habit of making by special assessment."

If riparian owners cannot be specially assessed to pay for the improvement of a navigable stream, *a fortiori* they cannot be required to surrender valuable property rights, without compensation, in furtherance of a scheme to improve one that is not navigable in its natural condition. Much time and labor have been spent by appellant in presenting reports

of surveys, maps and engineering schemes for the improvement of this river, which, if carried out, would render the river navigable. But all this is not pertinent to the issue. The question is whether the river was navigable in a state of nature, and not whether it can be made so by artificial means.

It is also contended that the Sanitary District act declared this river to be navigable. This contention is based on a sentence in section 24 of said act, as follows: "When such channel shall be completed, and the water turned therein, to the amount of 300,000 cubic feet of water per minute, the *same* is hereby declared a navigable stream." Appellant's contention, under this statute, is thus stated in its brief: "The *same* means that the water flowing in that channel is a navigable stream. The water so turned in was navigable in fact, and it does not lose its navigability in passing out of the artificial channel into the channel of the Desplaines river. The water is just as navigable one-half mile southwest of Joliet as it is one-half mile northeast of Joliet." The argument is based upon an erroneous construction of the word "same." That term refers to the channel of the sanitary district and has no reference to the water after it leaves the channel.

But even if the legislature had declared in unequivocal language, that the Desplaines river was navigable, as it did by the act of 1907, such declaration could not have the effect of depriving appellee of vested rights as riparian proprietor, if such rights exist. The general doctrine upon this question is well expressed by the Supreme Court of Kentucky in *Murray* v. *Preston*, 106 Ky., 561, (90 Am. St. Rep., 232,) as follows: "The first question is, what is the effect of the act of the legislature declaring this creek a navigable stream? The constitution of the State forbids private property being taken for public use without just compensation being previously made. If the creek was not a navigable stream when this act was passed it was the private property of the owners of the adjoining lands. If it was the private property of appellant within the boundary of his land, the legislature could not divest him of his rights by simply calling it a navigable stream when it was not one in fact. The rule on this subject is thus stated in Cooley on Constitutional Limitations (side p. 591): 'The question what is a navigable stream would seem to be a mixed question of law and fact, and though it is said that the legisla-

ture of the State may determine whether a stream shall be considered a public highway or not, yet if, in fact, it is not one the legislature cannot make it so by simple declaration, since if it is private property the legislature cannot appropriate it to a public use without providing for compensation.' " And the same doctrine is announced in the following cases: *Walker* v. *Board of Public Works,* 16 Ohio, 540; *Morgan* v. *King,* 35 N. Y., 454; *Shenango Bridge Co.* v. *Paige,* 83 id., 178; *Martin* v. *People,* 5 Blackb., 35; *Olive* v. *State,* 86 Ala., 88 *People* v. *River Mill and Lumber Co.,* 107 Cal., 221; *Yates* v. *Milwaukee,* 10 Wall., 497; *Watkins* v. *Dorris,* 54 L. R. A., 199.

None of the legislative acts relied upon by the appellant were passed for the primary purpose of promoting deep water navigation from the lakes to the gulf by means of improving the channel of the Desplaines river. The various acts passed in the interest of the Illinois and Michigan canal, as well as the Sanitary District act, did not include any general scheme for the improvement of the Desplaines river. Up to this time no general plan for the deep waterway has been adopted, either by the State or the nation. Whether such enterprise will ever be attempted by either, separately or by the joint action of both, and, if such enterprise is entered upon, whether the plan will embrace the use of the old Illinois and Michigan canal or the sanitary district channel in connection with a part of the Chicago and Desplaines rivers or whether some new and entirely different channel will be adopted, are all legislative questions, with which the courts have no concern. Figuratively speaking, the waters have been much troubled on this subject, but so far neither the nation nor the State has legislated how they shall flow. What the future will see accomplished along these lines no one can know. It may be that when that future is unfolded it will bring a realization of the hopes of the most optimistic, and that the appearance of sea-going vessels plowing through the prairies of Illinois, laden with the people and products from the uttermost parts of the earth, will be as common as the now almost forgotten "prairie schooners" of 1849 were in those days. But if this transition is to occur,—if the powerful hands of the government are to lay hold of this gigantic enterprise,—they must do so with due regard to the sacred rights of every citizen, however humble and insignificant those rights may seem in contrast with the great public consummation.

What is a navigable stream is a question to which different courts have given different answers. In some of the States, where the lumber business was of great importance and the floating of saw logs an essential branch thereof, a stream that had the capacity for floating logs, though only for short periods in times of freshets, was held to be navigable. (*Brown* v. *Chadbourne,* 31 Me., 9; *Moore* v. *Sanborne,* 2 Mich., 519.) But these cases, and the reasons upon which they rest, were examined by this court in *Hubbard* v. *Bell,* 54 Ill., 110, and their authority expressly rejected. In discussing that question this court, on page 122, used the following language: "It is not enough that a stream is capable, during a period, in the aggregate, of from two to four weeks in the year, when it is swoolen by the spring and autumn freshets, of carrying down its rapid course whatever may have been thrown upon its angry waters, to be borne at random over every impediment in the shape of dams or bridges which the hand of man has erected. To call such a stream navigable in any sense is a palpable misapplication of the term." The doctrine of this case has been re-affirmed by this court in *Schulte* v. *Warren, supra,* and on page 119 of the latter case this court approved the following definition of a navigable stream by Lord Hale in his treatise *Dejure maris:* "A stream, to be navigable, must furnish 'a common passage for the king's people,' must be 'of common or public use for the carriage of boats and lighters,' must be capable of bearing up and floating vessels for the transportation of property conducted by the agency of man." And the same definition is also approved in *Joliet and Chicago Railroad Co.* v *Healy,* 94 Ill., 416. In the *Schulte case* it was further said (p. 119): "A stream is navigable, in fact, only where it affords a channel for useful commerce and of practical utility to the public as such. The fact that there is water enough in places for row boats or small launches answering practically the same purpose, or that hunters and fishermen pass over the water with boats ordinarily used for that purpose, does not render the waters navigable."

A stream, to be navigable, must in its ordinary, natural condition furnish a highway over which commerce is or may be carried on in the customary modes in which such commerce is conducted by water. (Gould on Waters, sec. 34, and cases there cited.) Whether the stream in question is navigable is a question of fact, the burden of proving

which rests upon the party asserting it. (*Ligare* v. *Chicago, Madison and Northern Railroad Co.*, 166 Ill., 249.) To maintain this issue appellant with commendable industry has assembled every fact which appears to have even a remote bearing on the question and incorporated the evidence in the record. Research into historical data has been made and the result presented to the court. This class of evidence begins with the account of the first voyage of Marquette and Joliet, in 1673-74, as related by John Gilmary Shea in "Shea's Early Voyages up and down the Mississippi," published in 1700 by Burrow Bros. Excerpts from this publication were introduced, also copies of maps made by Marquette and Joliet showing the principal features of the country explored by them. Section 10 from a chapter from this book, entitled "The first voyage made by Father Marquette toward New Mexico, and how the idea thereof was conceived," reads as follows:

"Return of the Father and of the French.—After a month's navigation, while descending the Mississippi from the 42d to the 34th degree and beyond, and after preaching the gospel as well as I could to the nations that I met, we started on the 17th day of July from the village of the Akensea to retract our steps. We therefore re-ascended the Mississippi, which gives us much trouble in breasting its current. It is true that we leave it at about the 38th degree to enter another river, which greatly shortens our road and takes us with but little effort to the Lake of the Illinois. We have seen nothing like this river that we enter, as regards its fertility of soil, its prairie and woods, its cattle, elk, deer, wild oats, bustards, swans, parroquets, and even beaver. There are many small lakes and rivers. That on which we sailed is wide, deep and still for sixty-five leagues. In the spring and during part of the summer there is only one portage of half a league. We found on it a village of Illinois, Kaskaskia, which consists of seventy-four cabins. They received us very well and obliged me to promise that I would return and instruct them. One of the chiefs of this nation, with his young men, escorted us to the Lake of the Illinois, whence at last, at the end, we reached the bay Des Prantz, from which we had started at the beginning of June."

This account indicates a reasonable probability that Father Marquette went up the Mississippi river, turned into the Illinois, thence up the Illinois to the mouth of the Des-

plaines, and up that river to a point where a portage was made to the south branch of the Chicago river, thence into the Lake of Illinois, (Lake Michigan), and this probability is strengthened by the maps introduced, which show that these rivers, together with the portage between the Desplaines and the Chicago, were known at that time. The boats in which these voyages were made are described in the following passage: "We were not long in preparing all our equipment, although we were about to begin a voyage the duration of which we could not foresee. Indian corn, with some smoked meat, constituted all our provisions. With these we embarked,—Monsieur Jollyet and myself, with five men,—in two bark canoes, fully resolved to do and suffer everything for so glorious an undertaking."

A passage from "Indian Antiquities," by Schoolcraft, is introduced, which recites that in 1783 Jean Baptiste Perrault, a fur trader from Montreal, spent a year in Cahokia and returned by way of Chicago with a canoe and a barge loaded with furs. The passage referred to is as follows: "About the 15th of April the packs from Missouri arrived. Our bourgeois settled his accounts with M. Coteau and received seventy-four packs of furs. His retail store at Cahokia produced 500 Spanish dollars and 400 pounds of tobacco. We left Cahokia on the 4th of May for Mackinac. My directions were to pass by Chicago, having one barge and one canoe, and to await the arrival of M. Marchisseaux at Little Detroit, in Lake Michigan, he having gone by the way of Prairie des Chiens to terminate his business with the Sauks. After fourteen days' detention he arrived, and continuing our route we reached Mackinac the beginning of July, where I found myself at liberty."

A manuscript not very well authenticated was introduced, which shows that Hugh Heward, in May, 1790, made a voyage from Lake Michigan through the Chicago river and over the portage road to the Desplaines, and down the Desplaines and Illinois to some point (probably Kaskaskia) on the Mississippi river. This document records the fact that after passing over the rapids above the village of Mt. Julliette two of his comrades informed Heward that "there was so much danger they would not return with Heward." The character of the boats and cargo is not described, but neither could have been very heavy, since the boats and cargo were carried over the portage from the Chicago river to the Desplaines by Heward and his two com-

rades with the help of five Indians, whose services were paid for with two handfuls of powder.

There are other historical references to the route by way of the Chicago and Desplaines rivers to the Mississippi, but these are the only well authenticated voyages that were made during the first one hundred and fifty years after the discovery of the Desplaines river. The fact that during this long period only an occasional voyage was made under the guidance of a heroic adventurer or a religious zealot, who, in the language of Marquette, "feared no death and regarded no happiness greater than that of losing his life for the glory of Him who made us all," is not sufficient evidence to prove that the Desplaines river was, in fact, regarded as navigable by the great majority of the people who must have been acquainted with it during this period. It rather tends to show that the few who possessed the courage to brave the dangers incident to a voyage over the rocky rapids of the Desplaines were exceptional cases, and that the great body of the people living in the vicinity of this river did not regard the navigation of the river as reasonably safe and therefore made no use of it. There is not in this entire record a well authenticated instance in which a boat engaged in commerce navigated the waters of the Desplaines river. It seems pertinent to inquire, if the Desplaines river is navigable why has it not been navigated? If the Desplaines river was navigable, why did the State of Illinois spend $10,000,000 in the construction of the Illinois and Michigan canal, which parallels the Desplaines river. The conclusion is irresistible that in the opinion of the legislature the Desplaines river was not only not navigable in its natural condition, but that the natural obstructions were such that it was cheaper to construct a navigable canal than to remove the difficulties out of the natural channel. Appellant's answer to the last question above stated is, that the Illinois and Michigan canal was extended beyond the point where it might have intersected the Desplaines river in order to obtain as large a grant of land as possible from the Federal government. This answer discredits the intelligence of Congress and reflects on the honor of the State. We are unwilling to believe that the State would have asked for, or that Congress would have granted, lands to aid in the building of a canal that was not needed. The Chicago river was used as a part of the canal at its northern end, and had it been practicable to

do so, it is reasonable to believe the Desplaines river would have been used at the other end.

A large number of witnesses testified, some from personal observation and others as experts, upon this issue. As might be expected, these witnesses testify to opposite opinions in regard to the navigability of this river. It is not practicable nor desirable to discuss this evidence in detail. Whatever may be thought of the preponderance of it one way or the other, it can have but little weight as against the uncontroverted fact that the river has never been used as a public highway for commerce. During the early part of the history of the Mississippi valley, and before railroad transportation came into general use, all of the navigable rivers in the settled portion of the country were extensively used. The necessities of the early settlers compelled them to use the means of transportation that nature afforded them. Before steamboats were in general use, farm products were floated down the Mississippi river and all of its tributaries in floatboats. The Sangamon, Illinois, Wabash and Ohio rivers were thus extensively used. Had it been possible to do so, it seems but reasonable that the Desplaines river would have been used in the same way by the early settlers, but the evidence of any such use is not found in this record. The evidence shows that as early as 1817 there was a well-beaten wagon road from the mouth of the Desplaines river to Chicago, over which boats and other loads were hauled by oxen and vehicles kept for that purpose by the French settlers at Chicago. The evidence of the existence of this road is found in a report by R. Graham and Joseph Phillips made to Hon. J. C. Calhoun, Secretary of War, and is dated "Kaskaskia, April 4, 1819." The testimony of the early settlers is, that they came in and went out of Chicago by wagon road. In 1836 the New York and Oswego Transportation Line advertised in the *Chicago American* of May 14, 1836, that goods would be transported from New York to St. Louis. One link in the line of transportation was by "wagons from Chicago to the head of navigation on the Illinois river," and in the same paper a passenger line was advertised from Chicago to Peoria, which was by a mail stage leaving Chicago daily for Peoria, making the trip of 170 miles in "from thirty to thirty-five hours by steamboats and stages,—stages from Chicago to Peru and steamboats from Peru to Peoria. Fare, the whole distance, $11, and found on board the

boat. This line passes through Lockport, Juliet, Ottawa and Utica, to Peru." All of the witnesses who testified to the mode of transportation before the opening of the Illinois and Michigan canal, in 1848, testify to the general custom that prevailed along the line of the Desplaines river of hauling grain and other produce by wagon to Chicago, and some of them say that it was not uncommon in those days for wagons to go to Chicago from points as far south as Bloomington.

Appellant has introduced, for the purpose of comparison, descriptions of other rivers which have the same or similar natural obstructions that are found in the Desplaines river, notwithstanding which such other rivers have been held to be navigable. Evidence of this character was introduced in regard to the Mississippi, Fox, Wisconsin, Ohio, Kanawha, Cumberland, Missouri, Gasconade, Allegheny, Tennessee, Sangamon, Columbia and Snake rivers. To review all this evidence would extend this discussion to unreasonable bounds. We are not strongly impressed with the line of reasoning that is based upon this class of evidence. There are no two rivers exactly alike, and it will be found that most, if not all, of the rivers referred to as standards of comparison contain a long strip of navigable water, which is of sufficient length and importance to justify commerce in devising methods to overcome the natural obstructions. This is not true of the Desplaines river. There are no navigable portions of this river of sufficient length to make navigation profitable thereon. After the most careful consideration of this question we are of the opinion that the Desplaines river in its natural condition is not a navigable stream, and that the rights of parties to this suit must be determined upon that basis.

THE VALIDITY OF THE CONTRACTS.—*The flowage contract.*—The third ground upon which appellant rests its right to an injunction is the alleged invalidity of certain contracts entered into between the commissioners of the Illinois and Michigan canal and certain parties who have transferred all their interest in said contracts to appellee. In order to properly understand the questions involved in regard to these contracts it will be necessary to state some facts which we have not heretofore referred to.

At the point where the dam is located the Illinois and Michigan canal parallels the Desplaines river. The two water-courses are separated at this point by an artificial

embankment erected by the State in the construction of the canal. The canal is on the right side of the river, and still to the west of the canal arise steep bluffs, which are known as "Dresden Heights." On the left side of the river the triangle of land between it and the Kankakee is low and flat. The canal is elevated by means of an artificial embankment. This embankment has a trench in the top, carrying the Illinois and Michigan canal. The left-hand side of the embankment slopes toward the Desplaines river. On this side of the canal there is a level space a few feet wide at the crest of the embankment, which is called the tow-path. The sloping embankment of the canal extends up the canal. Appellee's purpose is to construct a dam across the Desplaines river so that the right-hand end thereof will rest against the sloping side of the canal embankment, thus forming a pool of water above the dam which will at its extreme height be twenty-four feet above low-water mark in the Desplaines river at the dam. The pool of water thus formed will extend several miles up the river, one side of which will rest against the canal embankment. At the point where the dam is located the canal embankment is approximately twenty-four feet above the level of the water in the river. The base of the canal at this point is about seventy feet in width, and the left bank next to the river is from twelve to fourteen feet in width at the top. From the base of the canal the ground slopes gradually to the river, which is about seven hundred feet distant. Appellee's intention is to raise the water in ordinary stages to an elevation about seven feet lower than the top of the tow-path bank. About one-half mile up the river from the dam is the southern extremity of a narrow strip of land between the canal bank and the river, which is designated in the record as the "sixteen-acre tract." This sixteen-acre tract is low and marshy, and is bounded on the one side by the Desplaines river and by the canal on the other. It is in section 31, township 34, north, range 9, east of the third principal meridian, in Will county, and is a part of the lands granted by Congress to the State to aid in the building of the canal and still belonged to the State when the flowage contract was made. The effect of constructing this dam will be to flood this sixteen-acre tract.

Appellant contends that the contract executed September 2, 1904, by the canal commissioners to Harold F. Griswold designated in the record as "the flowage contract," is void

and should be so declared by the court. This contract recites, that whereas the said Griswold, party of the second part, claims to be a riparian owner along the Desplaines and Illinois rivers, in Grundy and Will counties, and is as such riparian owner, about to improve the Desplaines river by the construction of a dam and other works across the mouth of said river, with a crest of such height that the pool formed thereby will be on a level with the waters of Lake Joliet, and is about to improve the Illinois river by deepening the channel of said river in section 25, township 34, north, range 8, east; and whereas, the State of Illinois is a riparian owner at different points on the Desplaines and Illinois rivers within the territory covered by this contract, and is the owner of certain described parcels of land under the control of the canal commissioners and which are not connected with a water power upon the Illinois and Michigan canal, which said riparian rights of the State have never produced a revenue, and the land is swampy, partially covered with water, and said lands are so situated that they cannot be made valuable by the State to create water power, and the party of the second part is desirous of obtaining the right to use, overflow and damage said lands, (not, however, in a manner to interfere with navigation on the Illinois and Michigan canal,) so much of the property of the State as may be necessary in the construction of said dam and other works in the improvement of said Desplaines river and in the deepening of the channel of the Illinois river. In consideration of these premises and the sum of $2200, the receipt of which was acknowledged, the parties entered into a contract, the substance of which is as follows:

The said contract purports to give the consent of the commissioners of the Illinois and Michigan canal to the construction of a dam across the mouth of the Desplaines river, with a crest at an elevation not to exceed minus 73.2 Chicago datum, which dam shall not back the water beyond the northern limits of Lake Joliet, and to deepen the channel of the Illinois river at certain points; and gives the rights and authority to Griswold to flow the ninety-foot reserve strip through certain sections of land by the canal bank, and to flow such of the lands in the north fraction of section 31, township 34, as lie south of the ninety-foot strip along the tow-path side of the Illinois and Michigan canal, where the same may be overflowed by reason of

the construction of said dam, together with a right to flow the water up against the tow-path bank of the canal, subject to certain conditions and specifications therein provided, intended to protect and preserve the canal and the tow-path bank thereof. The contract authorizes Griswold to attach one end of the dam to the tow-path bank of the canal, but not so as to interfere in any manner with the use of said tow-path in connection with said canal. The contract also authorizes Griswold to excavate in and remove so much of the Kankakee feeder (an abandoned feeder of the Illinois and Michigan canal) as may be necessary to discharge the waters of the Desplaines river through said feeder in a proper manner, and to remove the old aqueduct piers belonging to said feeder in the Desplaines river. The contract further provides that Griswold shall have the right to turn and avert water from the Desplaines river into the Kankakee river through a certain stream of water called the "Kankakee cut-off," through and over the Kankakee feeder and the ninety-foot strip on each side of the feeder, in section 25, township 33, range 9, and to construct controlling gates on the banks of said feeder for flood protection from the Kankakee river. Clause 6 of said agreement is as follows: It shall be the duty of said party of the second part, subject to the direction of the canal commissioners or other officer or agent, as hereinafter indicated, to raise the tow-path or bank or the Illinois and Michigan canal from its present height not less than two feet, and to any additional height that may be necessary to prevent overflow, and to *perpetually* thereafter maintain the same in good condition. The raising of said tow-path shall extend from the point in said Grundy county where the dam or other structure of said party of the second part intercepts said tow-path bank to lock No. 7, in section 17, township 34, north, range 9, east of the third principal meridian, and when raised, the width of the top of the tow-path bank shall conform to the width of the tow-path as it exists at the present time." By the eighth clause of said contract permission is given to Griswold to use so much of the gravel or other material lying along the canal and belonging thereto as may be necessary to raise the tow-path bank as is provided in the sixth clause, such material, however, to be taken from places indicated or approved by the superintendent of the canal. Permission is given to enter upon the lands and premises of the State for the purpose of con-

structing said dam and raising the tow-path and for making necessary repairs to the same. Griswold covenants to raise certain buildings owned by the State and used in connection with the canal to a level with the tow-path, as provided in paragraph 6 of said contract, and to provide two acres of land to be used by the State as a garden in connection with said buildings. It is provided and stipulated that all of the work to be done under said contract which shall affect the canal property or interest shall be done under the supervision of and to the satisfaction of the canal commissioners or other duly authorized agents, and not otherwise, and that such work, when completed, shall at all times be kept and maintained by said Griswold under a like supervision and approval of the canal commissioners, and that all costs of inspection shall be borne by said Griswold, who is, under the terms of said agreement, to be held responsible for all damages that may be sustained by the State or the canal commissioners, or the persons or property of persons using the Illinois and Michigan canal, or that may be occasioned by the contruction of the works contemplated to be done or in the subsequent repair and maintenance thereof under said contract. Said contract, and all the provisions thereof, are by its terms made obligatory upon the successors and assigns of said Griswold.

The Kankakee feeder is an artificial channel which was constructed upon the right side of the Kankakee river, commencing a few miles above the confluence of the Kankakee and Desplaines rivers and running in a northwesterly direction, almost parallel with the Kankakee river, to a point where the feeder intersects the Desplaines river, a distance of some three-quarters of a mile above the mouth of the Desplaines. The purpose of this feeder was to supply water to the Illinois and Michigan canal prior to the lowering of its summit level, after which the canal was supplied with water from Lake Michigan. The Illinois and Michigan canal being on the opposite side of the Desplaines river from the Kankakee feeder, it was necessary to cross the Desplaines river with this feeder in order to deliver, the water into the canal. The aqueduct and piers referred to in the flowage contract, and which Griswold is given the right to excavate and remove, are the works that were placed in the Desplaines river for the purpose of carrying the water in the Kankakee feeder across the Desplaines river to the canal. As already stated, this feeder was ren-

dered unnecessary after the summit level of the canal was lowered by the city of Chicago, so that the so-called Kankakee feeder has not been used for nearly twenty years prior to the commencement of this suit. It is marked "abandoned" on the map made under the direction of J. W. Woermann, United States assistant engineer. The evidence shows that the Santa Fe and Chicago and Alton railroads cross the Kankakee feeder and the ninety-foot reserve strip on either side thereof, and that the channel is filled up by the railroad embankments at the point where they cross the feeder. The Kankakee cut-off is an artificial channel connecting the Kankakee and Desplaines rivers. It taps the Kankakee river at a point near the section line between sections 5 and 6, township 33, north, range 9, east, and extends north a distance of two miles and intersects the Desplaines river about two miles above its mouth. The Kankakee cut-off crosses the Kankakee feeder near the center of the south line of section 5.

Appellant's contention in reference to this flowage contract is, that it is, in effect, a sale of the interest in the lands affected thereby, and as such it is void under the statute hereinafter referred to, because it was not made at a public offering after giving the statutory notice. It will be observed that this flowage contract is not limited to twenty years or any other specified term. The absence of such limit, and the provision in clause 6 which we have quoted above regarding the agreement of the party of the second part to perpetually maintain the tow-path or the bank of the canal in repair, form the basis for the contention that the contract is, in effect, a sale of the interest in the lands to be flooded. Numerous authorities are cited by appellant to the effect that an agreement for the perpetual flowage is, in effect, a sale of an interest in the land and a right of perpetual possession. Among the cases so holding in this State are *Woodward* v. *Seely*, 11 Ill., 157, and *Wilmington Water Power Co.* v. *Evans*, 166 id., 548. The authorities are numerous in other States to the same effect and the soundness of the proposition cannot be questioned.

The act of March 27, 1874, (Hurd's Stat., 1908, p. 220, *et seq.*), under which all of the contracts in question were made, after providing in section 1 to 7 for the appointment and organization of the board of canal commissioners, by section 8 defines the powers and duties of the said board. Said section 8 reads, in part, as follows:

"Sec. 8. Said commissioners shall have control and management of the Illinois and Michigan canal, including its feeders, basins and appurtenances, and the property thereto belonging, and all locks and dams and other improvements of the navigation of the Illinois and Little Wabash rivers, and shall have authority: * * *

"*Fourth*—To sell and dispose of any machinery, fixtures, stone, debris, material or personal property unnecessary for the proper management, construction, repair or use of said canal, locks, dams, and other improvements.

"*Fifth*—To lease from time to time any of the canal lands or lots owned by the State: *Provided,* no lease shall be for a period exceeding twenty years.

"*Sixth*—To lease from time to time, to the highest bidder therefor, any water power and lands or lots connected therewith. Before any such lease shall be made, at least thirty days' public notice of the intended letting shall be given by publication in some newspaper published in the neighborhood, and such other notice as the commissioners shall deem best. The commissioners shall have power to require that bids be accompanied by security and may reject all bids not satisfactory to them, and re-advertise until they shall receive satisfactory bids. No lease shall be for a period exceeding twenty years, but the commissioners may provide for the extension of any lease from time to time, not exceeding twenty years at any one time, at a rent to be fixed by an appraisal, to be made by three disinterested appraisers to be appointed by the Governor, and such appraisal shall be subject to the approval of the commissioners. All leases of water power and extension thereof shall be subject to the right of the commissioners to resume, without compensation to the lessee, the use of any such water power for the purpose of the canal, and also wholly to abandon or destroy the work by the construction of which the water privilege shall have been created, whenever, in the opinion of the legislature, such work shall cease to be advantageous to the State.

"*Seventh*—To the lease from time to time to the highest and best bidder (after publishing notice in some newspaper published in the county where the ice privilege to be leased may be,) in sections not exceeding one thousand feet, lineal measure, upon such terms, as not to interfere with the proper use and management of the canal, the right to take and harvest ice therefrom, or from any of its feeders, ba-

sins and appurtenances, and to prohibit all persons from taking and harvesting ice therefrom without such lease: *Provided,* no such lease shall be for a longer time than twenty years.

"*Eighth*—To sell and convey, whenever in their judgment the interest of the State will be promoted thereby, any canal lands or lots now owned by the State, and any riparian rights in and along the Desplaines river: *Provided,* they shall not sell any lands or any portion of the ninety-foot strip along the canal which are now utilized in connection with the use of the water power upon the said canal or which will prevent or interfere with the proper use and operation of the said canal as a waterway. But before making any such sale they shall obtain the approval of the Governor thereto, and to the time, place and manner of making the same: *Provided,* that before any such sale shall be made thirty days' previous notice thereof shall be given in some newspaper published in the county where such land, lots or riparian rights are situated. And said land, lots or riparian rights shall be sold at public auction to the highest and best bidder. *Provided,* that any or all such bids may be rejected if, in the judgment of the canal commissioners the interests of the State seem to require it.

"*Ninth*—To execute in due form and deliver any conveyance that may be necessary to comply with the conditions of any bond, contract or agreement heretofore made by those lawfully authorized to sell any of the real estate known as canal lands, where the purchaser shall have complied with the conditions of such bond, contract or agreement, and the commissioners are satisfied that he is justly entitled to such conveyance."

It will be seen that under the second proviso of clause 8 of section 8 of the statute above quoted it is required that before any sale of "canal lands or lots" can be made by the canal commissioners it is necessary that they obtain the approval of the Governor and advertise such sale for thirty days in some newspaper published in the county where such lands, lots or riparian rights are situated, and that such sale can only be made at public auction to the highest and best bidder. If the flowage contract was a sale of canal lands or lots or riparian rights, then, clearly, under this statute such sale would be void, since there was no attempt on the part of the canal commissioners to comply with clause 8 in relation to the sale of canal lands and lots. By careful at-

tention to section 8 and the several clauses thereof it will be found that the powers of the canal commissioners may be divided into two classes, as follows:

(1) Powers which may be exercised without notice, which are: (*a*) All the general powers of the commissioners given by the first sentence in section 8; (*b*) the power to sell and dispose of personal property, as provided in clause 4; (*c*) to lease for a period not exceeding twenty years any of the canal lands and lots owned by the State.

(2) Powers which can only be exercised after public notice and at public auction, which are: (*a*) The power to lease water power and lands and lots connected therewith, as provided in clause 6 of said section 8; (*b*) the power to lease the right to harvest and take ice from the canal, as is provided in clause 7; (*c*) the power to sell and convey canal lands and lots and riparian rights in the Desplaines river, as provided in clause 8.

The commissioners have no power to sell any land or any portion of the ninety-foot strip along the canal which is now utilized in connection with the use of water power, either at public or private sale, with or without notice.

Appellant contends that this flowage contract was a perpetual license to flow certain lands belonging to the State, and is void because a perpetual license is, in effect, a sale of an interest in the land, and regarding the contract as a sale, it cannot be upheld, for the reason that the statute in respect to sales was not complied with. There is no language in the contract showing that the parties to it intended it as a sale of any interest in the lands described therein. To give it the effect of a sale would be obviously against the intention of the parties to the contract.

Appellant contends that the contract is a sale because of the use of the word "perpetually" in connection with the duty of Griswold to keep the tow-path bank in repair. If this contract had by its terms granted the rights and privileges therein mentioned for a term of twenty years it would clearly be within the powers of the commissioners which are enumerated under division "*c*" of class 1, which are granted by the fifth clause of section 8 of the statute, unless the flowage contract should be held to be a lease of "water power and lands and lots connected therewith." If it is possible to do so, such a construction of the contract should be given as makes the contract valid rather than one which destroys it. No time having been stated in the contract it

must be inferred that it was made with reference to the statute, and the contract should be read in the light of the statute under which the commissioners were acting. It is a well established rule that where one attempts to grant a greater estate than he has, the conveyance will be effective to pass what he has although the grant may be inoperative as to the larger estate. Disregarding the word "perpetually," it could not reasonably be contended that the lease extended longer than the term authorized by the statute. It will be noted that the word "perpetually" is not used to define the duration of the rights granted to Griswold, but it occurs in a clause defining the obligations assumed by Griswold. But in our opinion the word "perpetually," as used in this contract, should not be construed as meaning "forever." The question here is, what did the parties mean and how did they understand the term? The word "perpetually" does not always mean "forever." (*De-Florez* v. *Reynolds*, 8 Fed. Rep. 334; *State* v. *Payne*, 31 S. W. Rep. 797.) This court held in *People* v. *Chicago Telephone Co.* 220 Ill. 238, and *People* v. *Central Union Telephone Co.* 232 id. 260, that a grant to a corporation of a franchise without any limitation as to duration will not be held as a grant in perpetuity but will be limited to the life of the corporation to which it was granted; and the same rule was announced by the Supreme Court of the United States in *Blair* v. *City of Chicago*, 201 U. S. 400. In the case last above cited, on page 485, the Supreme Court of the United States said: "We cannot agree that the duration of these permits would be in perpetuity because of the fact that no time was named in them. The extension into Lake View was part of the north side railway system, which by the terms of the grants from the city were limited to twenty-five years, and no longer. There certainly could be no intention, in granting these permits from the supervisors as extensions of the system, to make perpetual grants when the right of user of the main part of the line was expressly limited to twenty-five years, and their inference would be, that in extending this part of the system so as to make a portion of that already granted, such grants were to be for the same term as those already made."

Reading the statute, which authorized the canal commissioners to enter into this contract for a term of twenty years, in connection with the language of the instrument, and construing the word "perpetually" in view of the statute and the context of the contract, we think it means that the rights granted

to Griswold are for twenty years, and that his obligation to maintain the tow-path bank in repair is co-terminous with the rights granted to him.

That this flowage contract was not understood by the parties thereto as conveying a perpetual right to Griswold to flow the property of the State therein described is shown by the fact that on January 6, 1905, the canal commissioners sold and conveyed to Griswold the parcel of land known as the sixteen-acre tract. This sixteen-acre tract is embraced in the flowage contract. If by such flowage contract Griswold obtained the right to flow said sixteen-acre tract in perpetuity, then there would have been no reason for his paying $500 additional for a deed to said tract. This transaction shows that the parties themselves did not regard the flowage contract as a sale of an interest in the land itself. On the same day that the flowage contract was executed, and as a part of the same transaction between the canal commissioners and Griswold, a lease was executed of the ninety-foot reserve strip along the tow-path of the canal, describing said ninety-foot strip in the same way that it is described in the flowage contract, which said lease is for a term of twenty years from said second day of September, 1904. The lease was a general lease, in consideration of $500. It is not stated in said lease what use is to be made of said ninety-foot reserve strip.

It is a familiar rule of construction that where different instruments are executed between the same parties and relating to the same subject matter, all of the instruments should be construed together in determining the real intention of the parties. This rule has often been applied by this court. (*Canterberry v. Miller,* 76 Ill. 355; *Wilson* v. *Roots,* 119 id. 379; *Gardt* v. *Brown,* 113 id. 475.) Applying this rule to the flowage contract and the lease of the ninety-foot strip, which also included the sixteen-acre tract, we have this situation: The canal commissioners leased to Griswold certain portions of the ninety-foot reserve strip, the sixteen-acre tract and certain privileges in regard to the Kankakee feeder for a term of twenty years. At the same time the flowage contract was executed, authorizing Griswold to flow the identical lands, as far as the ninety-foot strip and the sixteen-acre tract are concerned, as are mentioned in the twenty-year lease. Construing both these instruments together and as constituting parts of an entire transaction, there is little room to doubt that the parties intended that the flowage contract

would terminate with the lease upon the same premises. The execution of the lease upon the ninety-foot strip was not an unusual transaction. The evidence shows that for many years the State has derived a very substantial revenue from leases of the ninety-foot strip. The report of the canal commissioners for 1895 and 1896 shows that approximately $10,000 was received as rentals from the ninety-foot reserve strip. There is clear authority under the statute for making such leases, provided the lease shall not extend beyond twenty years, and provided also that where the lease is connected with a water power it can only be made in the manner provided in clause 6 of section 8 of the statute.

Appellant contends that the flowage contract and the lease constitute a water power lease, within the meaning of that term as it is used in clause 6 of section 8 of the statute. Appellant's position is, that since the statute forbids the leasing of "any water power and lands or lots connected therewith," without complying with certain conditions as to advertising and appraising, and since the purpose of Griswold in obtaining these contracts was that he might use the demised premises in connection with the water power which he was intending to develop in the Desplaines river, therefore the lands and lots were connected with a water power and could not be leased without complying with the conditions of the statute, even though the water power in connection with which the premises were to be used did not belong to the State and had no connection whatever with the Illinois and Michigan canal. The fallacy of this contention is obvious. The "water power and lands or lots connected therewith," referred to in the sixth clause of section 8 of the statute, and which the canal commissioners cannot lease except by complying with the conditions imposed by the statute, are clearly the water power in the canal itself and the lands and lots connected therewith, which the State owns and which the canal commissioners are authorized to lease. It cannot be supposed that the legislature intended to give the canal commissioners the right to lease water power which the State did not own and over which it had no control whatever. The language of the sixth clause which authorizes the canal commissioners "to resume, without compensation to the lessee, the use of any such water power for the purpose of the canal, and also wholly to abandon or destroy the work by the construction of which the water privilege shall have been created," clearly shows that the water power which the com-

missioners had the power to lease was a water power which could be abandoned and the use of the water "resumed" whenever, "in the opinion of the legislature, said work shall cease to be advantageous to the State." There can be no doubt, it seems to us, of the meaning of this statute. It means that if a water power on the canal was leased and the drawing off of the water was found to interfere with the use of the canal, the commissioners would have the power to cancel the lease and "resume" the use of the water for canal purposes without paying any compensation or damages to the lessee in consequence of such resumption by the State. As we have sought to show in our discussion of the question relating to the title of the State to the bed of the Desplaines river, appellee owns or controls the lands, upon both sides of the river, at the place where the dam is located. The State owned no portion of the land upon which the dam was located, in the bed of the river or on either side thereof, except the tow-path bank, to which one end of the dam was to be joined. There is therefore no basis for the argument that the flowage contract and the lease were void because they were connected with a water power privilege belonging to the State. No one would seriously contend that the owner of a farm on a river which might be affected by the construction of a dam below it would sell a water power which he did not own, simply by consenting to the flowage of his lands located above the dam. The lands embraced in the flowage contract and the lease were not used in connection with any water power on the canal. Appellee did not obtain its right to build the dam from the State, but this right, as we have seen, existed as an incident to its ownership of the land, on both sides of the river, at the place of its location.

There is a provision in the lease of September 2, 1904, which we are considering as a part of the transaction resulting in the execution of the flowage contract, which provides for a re-leasing at the expiration of the term or a renewal of the lease, provided the lessee is willing to pay as much as anyone else for the premises or an amount to be fixed by appraisement, but which should not, in any event, be less than the amount fixed in this lease. Appellant contends that the covenant for the renewal of the lease for twenty years longer was part and parcel of the leasing contract itself, which, being so construed, made the lease, in effect, a lease for forty years, which renders it void under the statute. The power of the commissioners to provide for the renewal of

leases from time to time, not exceeding twenty years at any one time, at a rental to be fixed by appraisement, is conferred by clause 6 of section 8, and is limited to leases of "water power and lands or lots connected therewith," and has no reference to leases made by private treaty of "canal lands or lots owned by the State," which are authorized to be made under clause 5 of section 8. The lease itself having been made under the fifth clause of section 8, the clause providing for the renewal for another term (provided for in clause 6) was improperly included in the lease. There is no warrant in the statute for inserting such provision in any leases other than those made of "water power and lands or lots connected therewith," under clause 6. Statutes delegating powers to public officers must be strictly construed, and all parties interested must look to the statute for a grant of power. (*Diederich* v. *Rose*, 228 Ill. 610, and cases there cited.) There being no statutory power in the commissioners to enter into the renewal provision in this lease, it necessarily follows that such provision must be held void.

But we are unable to concur in appellant's contention that the invalidity of this clause renders the entire contract void. It does not present a case where a part of an entire consideration for the promise or agreement, or a part of an entire promise, is illegal and void. The lease is a complete contract in all respects, obligating the lessee to pay the entire consideration for the lease for a term of twenty years. The clause relating to the renewal of the lease for twenty years more is an independent and severable covenant, which in no way affects the validity of the lease for a term of twenty years, as therein provided. The rule upon this subject is, that if a contract is made, consisting of two or more covenants, upon a valuable and legal consideration, and one of the covenants is illegal and the other is legal, if the covenants are so distinct that that which is legal may be severed from that which is illegal, so that each covenant may be considered as a distinct contract, the legal covenant can be enforced and that which is illegal disregarded. (Page on Contracts, sec. 509; *Corcoran* v. *Lehigh Coal Co.* 138 Ill. 390.) In our opinion the lease in question falls under the rule above announced, and should be read and enforced as though the renewal clause was not in it.

The deed to the sixteen-acre tract.—On January 6, 1905, the canal commissioners made a quit-claim deed to this sixteen-acre tract to Harold F. Griswold, and appellee has suc-

ceeded to Griswold's title. Appellant contends that the canal trustees had no authority to execute the deed conveying this sixteen-acre tract to Griswold, and that, the deed being void, the title to said tract is still in the State, the protection of which will warrant a court of equity in enjoining the construction of the proposed dam. The charge made in the bill upon which the conclusion of invalidity is predicated is, that the premises conveyed were lands and lots connected with a water power privilege. The canal commissioners not being authorized by the statute to sell and convey water power privileges, or lands and lots connected therewith, it is sought to avoid this sale on that ground. The charge thus made in the bill is apparently abandoned in the briefs, but if it had not been so abandoned we do not regard the position as tenable. The need is a conveyance to a low, marshy piece of land which the State owned, on the shore of the Desplaines river. While, as we have already seen, the conveyance of this strip carried the title to the thread of the stream, still there is not now, and never has been, any water power developed in the river opposite this strip of land. Besides, we have sought to show in our consideration of the flowage contract that the water power which the canal commissioners were prohibited from selling was water power connected with the canal itself. The evidence shows that prior to the sale the canal commissioners applied to the Hon. Richard Yates, then Governor of the State, for his approval of the sale, and after such approval was given the sale was duly advertised in the manner and for the length of time required by the statute and the land sold to Harold T. Griswold for $500, he being the highest and best bidder, and that said consideration was paid by the purchaser and a deed executed in pursuance of the sale. There is no claim that there was any fraud or collusion between the agents of the State and the purchaser at this sale. There is no reason to believe that the consideration was inadequate. This land had been carried by the canal commissioners on their books at an appraisement of $408 and had not been sold, presumably because no one could be found willing to pay the appraised value for it. After holding it more than fifty years it was sold, as above stated, for $500.

The principal reason urged in appellant's brief why this deed should be declared void is, that the sale was not made by the commissioners in person but by a third party who acted at the request of the commissioners. This objection,

it will be seen, is not stated in the bill. But even if this point were properly pleaded and proven, it would amount to nothing more than a mere irregularity, which would not justify a court of equity in declaring the sale void, in the absence of any circumstances showing that the rights of the State had been prejudiced thereby. The power to make the sale is expressly vested by the statute in the canal commissioners. They sold the land in accordance with the formalities required by the statutes and executed a deed to the purchaser. The State received and retained the purchase money and has not offered to return any part of it. The State was, in legal contemplation, the grantor in the deed through its lawfully constituted agents. In *Gunnell* v. *Cockerill*, 79 Ill. 79, and *McHany* v. *Schenk*, 88 id. 357, it was held that a sale made by an attorney of a mortgage, under a power authorizing the mortgagee to sell, was a mere irregularity, which would not affect the rights of innocent third parties who might afterwards acquire the title.

At the time of the sale and conveyance of the sixteen-acre tract to Griswold appellee had no connection either with the land or with Griswold. It was not until November, 1906, that appellee succeeded to Griswold's title to this land. The State took no steps to avoid the sale while the title was in the original purchaser. The records of the county exhibited a clear and unquestionable title in appellee's grantor. The irregularity complained of did not appear of record. Under these circumstances it would be a perversion of equitable principles to permit the State to have this deed declared void because of the irregularity complained of. In our opinion the deed is a valid conveyance of all interest the State then owned in the sixteen-acre tract.

The Kankakee feeder lease.—The Kankakee feeder has already been briefly described. It was constructed about the time the canal was completed. It was originally a navigable canal, forty feet wide at the top and twenty-six feet at the bottom, with a depth of four feet, except at its mouth, where it was five feet deep. Its purpose was to supply the canal, with which it connected, with water brought down from the Kankakee river. A wooden aqueduct resting on stone piers carried the water in the feeder over the Desplaines river to the right bank, near which the feeder flowed, into the Illinois and Michigan canal. This feeder has not been used since the canal was deepened so as to obtain a sufficient water supply from Lake Michigan. The right to remove

what remained of the rock piers in the Desplaines river and to excavate the embankment of the feeder on the sixteen-acre tract north of the river and south of the canal so as to discharge the waters through section 31 in the proper manner was granted by the canal commissioners by the third clause of the flowage contract, and was included in the lease of September 2, 1904, which have already had our consideration. On August 8, 1905, another lease was executed by the canal commissioners to Griswold, purporting to lease to him for twenty years all rights which the State had, under the control of the canal commissioners, to divert the water of the Kankakee river into the Kankakee feeder and to discharge the same into the Desplaines river in said section 31, together with the right to restore the dam across the Kankakee river, and such right as the State had to construct, at each end of the feeder, suitable gates to control the water of the Kankakee river through such feeder, and to enter upon the Kankakee feeder for the purpose of repairing the banks thereof,—all of which rights were granted subject to the rights of the Atchison, Topeka and Santa Fe Railroad Company and the Chicago and Alton Railroad Company, both of which have solid embankments across the feeder and the ninety-foot strip on the side thereof. Said lease gave to Griswold the option of abandoning the premises at any time after five years by giving notice and restoring the feeder to its present condition, if required so to do. Said lease also provided that the canal commissioners might cancel the lease at any time, "whenever, in the judgment of the canal commissioners or other proper officers of the State having charge of canal property, they shall deem the interest of the State required it to re-possess and use the property for State purposes." Said lease was made in consideration of $150 per annum, payable on the tenth day of August, 1905, and on the tenth day of August in each and every year of said term. The lease also contained a renewal clause similar to that already discussed in reference to the lease of September 2, 1904. On November 27, 1907, the legislature adopted the following joint resolution:

"Whereas, the canal commissioners appointed under and by virtue of 'An act to revise the law in relation to the Illinois and Michigan canal and for the improvement of the Illinois and Little Wabash rivers,' approved March 27, 1874, in force July 1, 1874, have at various times heretofore executed leases of water power and water privileges to private individuals

and corporations, under and by virtue of the powers granted to said commissioners by section 8 of the above entitled act, and that among the said leases were certain alleged leases or agreements to Harold T. Griswold, dated September 2, A. D. 1904, purporting to grant and convey certain rights and privileges in and to the waters and water power of the Desplaines and Kankakee rivers; and whereas, the said Harold T. Griswold or his assignees, by virtue of said alleged leases or agreements, are building and constructing certain dams, controlling works, locks and other obstructions in and across said streams, which, in the opinion of this General Assembly, are destructive of the navigation of said streams and to the disadvantage of the State of Illinois; and whereas, the sixth clause of section 3 (8) of said act provides, among other things, as follows: 'All leases of water power and extensions thereof shall be subject to the right of the commissioners to resume, without compensation to the lessee, the use of any such water power for the purposes of the canal, and also wholly to abandon or destroy the work by the construction of which the water privilege shall have been created, whenever, in the opinion of the legislature, such work shall cease to be advantageous to the State'; and whereas, the construction of such dams, controlling works, locks and other obstructions being erected and constructed by the said Harold T. Griswold or his assigns have ceased to be advantageous to the State, and that such water power and water privileges purporting to have been granted in and by virtue of said alleged leases or agreements are necessary for the purpose of the canal; therefore be it

"*Resolved by the House of Representatives, the Senate concurring therein,* That the said canal commissioners are hereby empowered and directed to cancel and annul said alleged leases or agreements and any and all extensions thereof, and to resume all such water power and water privileges therein purported to have been granted to the said Harold T. Griswold by the said canal commissioners on September 2, A. D. 1904, and that said water power and water privileges be restored for the purpose of the canal, and that all such dams, controlling works, locks and other obstructions therein existing for the purpose of creating such water power and water privileges be forthwith abandoned and destroyed by such canal commissioners."

Appellant contends that the adoption of this resolution had the effect of canceling this lease, and assigns two rea-

sons therefor: (1) Because the legislature is the "proper officers of the State in charge of canal property," within the meaning of the language of the lease whereby the right to cancel is reversed; (2) that said contract is a lease of water power, and that the State had the right, under the statute, to resume the use of the water and cancel the lease "whenever, in the opinion of the legislature," it was advantageous to the State to do so. Neither of these contentions can be sustained. The clause in the lease reserving the right to cancel it to "the canal commissioners or other proper officers of the State at such time having charge of canal property," means that the canal commissioners, or such other officers or agents as the State may designate by law to have charge of the canal properties instead of the canal commissioners, shall exercise the right of cancellation. If the State should abolish the board of canal commissioners and create some other agency to have charge of canal property, such other substituted agency could probably exercise the right of cancellation. The right to declare this contract at an end by one party thereto without the consent of the other party should be strictly construed, and so long as the State continues to board of canal commissioners in charge of canal property they are the only officers who can exercise this reserve right. The right under the contract does not arise until in the judgment of the canal commissioners "the interest of the State requires it to re-possess and use such property for State purposes." The discretion or judgment to be exercised, under the terms of the agreement, by the canal commissioners cannot be exercised by other State officials in another department of the State government. The second ground is equally untenable. This lease is not a water power lease, within the meaning of the statute. We have already expressed our views as to the meaning of water power leases, and for the reasons heretofore given appellant's second point cannot be sustained. If this contract was a water power lease, or lands and lots connected therewith, it would be void for other reasons, regardless of the legislature resolution.

There is still another reason why this lease is not affected by the joint resolution. It will be seen that the resolution is directed against certain leases made to Harold T. Griswold on September 2, 1904. Apparently this resolution refers to the flowage contract, the lease of the ninety-foot strip and the pole lease, which were the only contracts

executed between the canal commissioners and Griswold on that day. The Kankakee feeder lease was executed August 8, 1905, and therefore does not come within the purview of the joint resolution. The observations which we have heretofore made in reference to the renewal clause will apply to appellant's objection based on that clause in the lease now under consideration.

Appellant contends further that this lease is void because the Kankakee feeder is an integral part of the canal, and that the commissioners, under no circumstances, have any power to lease the canal itself or any of its parts. Undoubtedly this view is sound as applied to leases which would interfere with the uses of the canal for navigation purposes. All the powers of the canal commissioners should be exercised in such way as to promote the object for which the canal was constructed. All of the powers granted to the canal commissioners have been carefully safeguarded, so that their exercise would promote, and not obstruct or defeat, the primary object the State had in view in lending its generous patronage to this great public enterprise. The Kankakee feeder was originally a necessary part of the canal. It was used not only to supply the canal with necessary water, but the feeder was also used as a navigable canal, through which boats passed back and forth between the Kankakee river and the Illinois and Michigan canal. As already pointed out, about the year 1888 the use of this feeder was discontinued. The dam in the Kankakee river below the head of the canal, which had been used to divert the water of the Kankakee river into the feeder, had been removed and the river restored to its original channel. The wooden aqueduct and the stone piers upon which it stood, through which the waters of the feeder were passed over the Desplaines river, had been allowed to fall into decay. The mouth of the feeder had been filled up under the direction of the canal commissioners. Two railroads had been permitted to construct solid embankments across the feeder, upon which they maintain tracks and operate railroads. Farmers owning lands along the feeder have been allowed to cut down the banks and run fences across the feeder without restriction. There is not the remotest probability that this feeder will ever again be used by the State in connection with the canal.

It appears from the foregoing facts that the validity of the lease of this feeder cannot be questioned on the ground that the exercising of the rights granted will interfere in

any way with the rights of the State or the public in the canal. With an ample supply of water from Lake Michigan it is not within the range of reasonable probability that this channel will ever be needed to feed the canal. Engineer Cooley testified that he could not foresee any state or condition which would render its future use necessary. But even if we may suppose a possibility that this feeder may be again needed by the State, the power to cancel this lease is expressly reserved to the canal commissioners. Again, if such necessity should arise, the things that the lessee is authorized to do by this lease would seem to be in line with the reconstruction of such feeder so that it would become usable. The lessee is authorized to reconstruct the dam in the Kankakee river, to repair the banks af the feeder and to perform other work necessary to cause the water to again pass through the feeder, all of which would be advantageous to the State should it again desire to use this channel. In our opinion there is no legal reason why the canal commissioners may not treat this abandoned feeder, and the lands and lots connected therewith, as other canal property, and lease the same during such time as it is not needed, for any lawful purpose that does not interfere with whatever rights the State may have to resume the use of this feeder for canal purposes. The title of the State to this feeder was not acquired by a grant from the United States government, as was the case with the canal proper, but the right of way for the feeder was obtained, in part, at least, by deeds from private owners of the lands over which it passed. A number of such deeds were introduced at the trial, and all of them contained the following condition: "Provided, however, if the said feeder should not be constructed over and through the said premises, or if, after the construction of the same, it should be by the decision of the board of trustees, their successors or assigns, abandoned and discontinued or the route thereof changed so as not to be continued over the said premises, then and in that case the said lands hereby granted shall revert to the said ..... and assigns." The blank in the last line was filled in with the name of the grantor. The evidence shows that as to a portion of the right of way for the feeder no paper title in the State could be found. It thus appears that a question may arise between the State and those entitled to the reversionary interest under the deeds, whether the State has any title or interest in the right of way of this feeder. This question we do not determine. The

claimants of such reversionary interests are not parties to this suit. Such rights, whatever they may be, will not be affected by the lease or anything that may be done by appellee thereunder. Without determining whether the State has any title or rights in the right of way of this feeder as against persons who may have succeeded to the reversion, and without deciding that the lessee has acquired any rights under the said lease as against such reversioners, our conclusion is that, as between the State on the one hand and the appellee on the other, no legal reason exists why this contract should be declared void.

The pole lease.—The contract designated "the pole lease" was executed September 2, 1904, between the canal commissioners and Griswold, and grants to the lessee the right to erect and maintain a line of poles along and upon the land belonging to the State, part and parcel of the Illinois and Michigan canal lands, to be located between the west line of section 25, township 34, range 8, in Grundy county, to Roby street, in the city of Joliet, in Will county, and between said west line of said section 25 and the western limits of the city of Morris, said line of poles to be placed on the berme side of the canal under the directions of the officers of the canal. Said lease is for a term of twenty years, and is made subject to existing pole leases, and also subject to the right to require a change in the location of the poles at any time when, in the judgment of the superintendent or person in charge of the canal property, such change is necessary. The consideration paid for this lease is $1000. Said poles are to be used by the lessee only in stringing wires to carry electricity generated at the proposed plant. The lessee agrees and covenants to erect and maintain the poles and wires in a good and workmanlike manner and in such way as not to interfere with the business of the canal or the property of others, and to assume all liability for deaths or personal injuries that may result from the use of such poles and wires, and to indemnify and save harmless the canal commissioners for all claims for damages to either person or property. Neither this lease nor the Kankakee feeder lease is of vital importance to the decision of the appellant's right to enjoin the construction of the proposed dam. Whatever view we might entertain in respect to these two contracts, it could not influence the ultimate result of this litigation. There are no reasons urged against the validity of the pole lease which have not been considered in connection with the other contracts, except that

appellant contends that the pole lease gave the lessee control of the tow-path of the canal for a distance of twenty-five miles. This is a misapprehension. The poles are to be placed on the berme side of the canal, which is the opposite side from the tow-path, except "where, in the judgment of said superintendent or officer, the topography of the ground makes it necessary or expedient to have said poles upon the tow-path bank of said canal, the authority is hereby given to said party of the second part to cross said canal and place poles along the said tow-path bank, the necessity or expediency thereof, the place and manner of crossing and placing said poles along said tow-path bank to be subject to the approval and under the direction and supervision of said superintendent or officer. It is distinctly understood, however, that the aforesaid line of poles shall not, in any event, be located or maintained in such place or manner as to interfere with the use or operation of said canal." As thus carefully guarded we are unable to see how it will interfere with the use of the canal or the tow-path. Unless it does so interfere, we see no reason why the contract should be declared void.

Conclusion.—It is seldom a case is presented to a court involving so many questions, both of law and fact, as are presented by this record. We have given the questions involved that careful consideration which their importance seems to demand. In view of the wide range covered by the evidence and the able and exhaustive arguments of counsel we have found it impracticable to discuss all of the questions raised or notice in detail all of the arguments presented, within the reasonable bounds of an opinion. We have, however, considered all of the questions, and discussed such of them in the preceding opinion as appear to be necessary to a proper determination of the legal rights of the parties. After giving due consideration to all that has been said by counsel in support of the several contentions of the State, together with such additional matters as our own investigation has disclosed, we have reached the conclusion that there is no equity in appellant's bill and that the same was properly dismissed by the court below.

The decree is affirmed.

Decree affirmed.

STATE OF ILLINOIS, } ss.
SUPREME COURT. }

I, J. McCan Davis, Clerk of the Supreme Court of the State of Illinois, and keeper of the Records and seal thereof, do hereby certify that the foregoing is a true copy of the opinion of the said Supreme Court in the above entitled cause of record in my office.

This copy is not to operate as a mandate in any event. Mandate will be issued only on request and payment of costs.

In Testimony Whereof, I have set by hand and affixed the seal of the said Supreme Court at Springfield, this 27th day of October, A. D. 1909.

J. McCAN DAVIS,
(Seal.) *Clerk of the Supreme Court.*

NOTE:—The foregoing opinion appears in 241 Illinois, pages 290-365.

995 GEORGE W. RAYMOND, witness for complainant, testified as follows:

Direct Examination.

I will be 70 years old the 20th day of next May. I live in Morris, Grundy county, Illinois. Have lived there nine years. Before that I lived in the town of Norman, Grundy county, in section 32, range 6. I have lived in Grundy county about 40 years. I was born in Big Grove township, at that time a part of La Salle county, Illinois. In 1855, my father bought a
996 half section of land where my farm now is. This farm, which I now own, is the northwest 200 acres of section 32, range 6, and is about a mile directly south of the south bank of the Illinois River. I remember the very high water in the Illinois River in 1857. As to how high the water was at that time, would say that I was a good swimmer. My brother sent me to Morris to get some milling done. On the south bank, to approach the ferry, I put what grain I had on some boards on top of the wagon box. I managed to get to the little ridge along next to the south bank and there got onto a ferry, and when I got there I crossed over and got my milling done, and bought my groceries, and by that time the river had risen so that it was impassable, so I took down the north bank down to about what they called at that time McMillan farm. That was nearly, not quite, opposite our farm and there I put my horses up and stowed away my stuff, and I got one of the boys to row me over the river and walked afoot over to our home.
Our team remained there about two weeks. Then I went
997 over and got an old scow flat boat; put my wagon and my team on and my commodities and I started. I landed about two miles below on the opposite bank, by tying up before the boat got to shore and got near enough so that I got my team and wagon off. As to whether there was any local bench mark or high water mark preserved locating the height of that high water of 1857, would say that there was a tree between my house and the bottom road, a hackberry tree where just at the roots there was a high water mark. That had already been taken out and obliterated. But I could approach it within a reasonable distance. The high water of 1857 was six feet higher, I should say, than it was last year (1907). I am acquainted with the local reputation among the Indians who were still living in that vicinity at the time of the high

water of 1857. The Pottowatamie chief Shabbona lived and died about a mile and a half from the farm I own now.
998 I knew him very well. I conversed with him about the local reputation of the state of water in the river. I compared with him the local reputation of the former waters known to him with that of 1857. When I went over to McMillan after my horses, wagons, etc., I told Shabbona by motions and talk that I wanted to get crossed over. He called a couple of squaws and they motioned to me and we went up the river a ways and they had what we call a canoe; and I seated myself nicely down in the bottom and they paddled me across, and I gave them a quarter of a dollar. I used to be very friendly with the old chief and I gave him a part of a sack of that flour that I got over on the scow and I asked him in regard to the water at that time and he made motion and he showed me—he put his cane up this way (indicating) "So; there, so, up." In the Indian way. He would understand very well what you said to him and he possessed that peculiar Indian way, a good deal of sign language as well as words. The height that he indicated was four feet higher, I should say, than the level of 1857. As to whether he ever talked to me about the local
999 reputation of the use of the stream in the early days by the settlers and explorers, would say that he told me one time, motioned that he was a small boy about three feet high, that "Me go this way, so, around Seneca." Seneca is in a low swale north of the river; is probably twenty feet above the natural flow of the Illinois River. One time he said they could go from here around so with canoes; Indians; when he was a small boy. At that time I presume likely Shabbona was 80 years of age. Shabbona used to stay at my house quite often and I asked him at that time when he was there in regard to getting my team over if the white men years ago used to go up and down. He said, "White men go so, so."

Q. Pointed both ways?

A. "So." He said, "Didn't go up stream, but they went this way (indicating)."

Q. Down stream?

A. Down stream.

1000 *Cross-examination.*

My farm is located southwest of Morris, between Morris and Seneca near the Illinois River. It is approximately 13

miles distant from Morris. It is 8 miles further up to Au Sable. As to whether my farm is located in the vicinity of the south bank of the Illinois River some 23 miles below the mouth of the Desplaines River, would say that if your statements are correct that is so. As to whether in my conversation with this old Indian I gathered from his statements to me that the white men never went north of my farm up the river, would say that they never went up stream.

Q. Never went up stream, but went from that point down the Illinois and into the Mississippi?

A. Yes. Well, he didn't say that—

1001 Mr. Starr: He didn't say from that point.

Q. Well, went down the stream?

A. Went down the stream.

Q. But not up stream?

A. No sir. Some two weeks after the flood of 1857, I went after my horses and got them on this flatboat, but before I could get across I had gone down the stream about two miles. The current was pretty swift. It was impossible at that time to row a boat up stream. I took an angling course to get across, and I went across just as quick as I could, that is, took the shortest distance. I have had some experience

1002 in navigation and boating on the Mississippi, the Arkansas and the White River. This experience covered about two years time. As to whether or not the Illinois River from the point where my farm is some 23 miles below the mouth of the Desplaines River is capable of carrying the commerce of this territory adjacent to the Illinois River in the ordinary way in which commerce is carried on (to which objection was made on the ground that it was not proper cross-examination, no foundation laid and incompetent, irrelevant and immaterial), I would say that I cannot state the condition of the Illinois River from the mouth of the Au Sable up towards the Desplaines. I never went over that ground. From that point down to where my farm is located or even below as

1003 a practical mode of transportation it is not so. I refer to both present and past conditions. From the signs that Shabbona communicated to me he gave me to understand that he had been familiar with the river since he was a boy of five or six years. He belonged to the tribe of Pottawatamie Indians. In 1857 I was 20 years old.

Q. Have you ever heard—do you know anything about the Desplaines River and its adaptability for carrying commerce?

A. Personally I do not.

1253 JOHN McCOWAN, a witness for the defendant, testified as follows:

Direct Examination by Mr. Munroe.

Q. Your name is William McCowan?

A. No, John. I have been called as a witness in this case before. I testified in my former examination, I believe, that I live near the wide water, in the Township of Channahon. I went to Channahon Township the 28th day of May, 1835.

1254 I knew all the neighbors in the township shortly after I came there,—all that were anywhere near Channahon. Of course, I heard of the others: The Linebargers; there was the Trite, and the Eibses, Jessups, Morehouse, Schermerhorn, Knapp and the two Tryon brothers. That is all that I knew,—there might have been some others. I knew John and Edwin Jessup. Mr. Prior was a cousin of John and Edwin; I was 9 and he was 18, and I think the Jessup brothers, that is, the two older brothers were a year or two older

1255 than he was. I ain't certain about their ages. I knew them well and intimately. Ofter went to their house and often met them. The Jessups lived in a log house when I came to Channahon in 1835. I could not state just how long they lived in that log house, as it was quite a number of years.

My father built the first sawed lumber house in the Township of Channahon; it was a small house, but it was a house; and Judge William D. Beck,—his name is mentioned in "Woodruff's History of Will County,"—those two buildings were the first sawed lumber houses in the Township of Channahon. The lumber that went into those houses came from Jack's mill, about four miles north of the Village of Channahon, on the DuPage River, and on the east bank of it.

1256 These houses were build in 1835, and that mill was in operation at that time. The Jessups had a log house, and in the rural communities they wasn't in no great hurry about getting lumber houses, and I cannot say just exactly when they build their house. This old man Jessup's house,—Isaac Jessup's house,—him and his two sons, or four sons rather, lived there together in this log house; and how long they lived in the log house, before the farm house, or board house, or whatever you have a mind to call it, I don't know; that is, I don't remember.

The lumber that the Jessup's built their house of, part of it

came from Chicago. That was a soft wood lumber they hewed the sills out. The soft wood lumber came from Chicago and the hardwood lumber, the same as the joists and studding, in the old house,—the Isaac Jessup house,—the first house east of what is called the Lewis house,—came from Jack's mill.

1257 I know the Jessup's didn't own any boat; I could not say about a skiff, because most everybody had a skiff, or Indian canoe hewed out of a log, but they didn't have any kind of a boat that you could carry lumber on. They didn't ever carry any lumber for any of the mills in the vicinity of Channahon that I ever heard of.

Q. Mr. W. W. Stevens has testified that Mr. Jessup told him in 1855 that they owned a boat and made frequent trips to saw mills in Wilmington in order to get lumber to build houses for the early settlers in Channahon. Do you know whether that is true or not?

A. I know they never had a boat to do that kind of work. I could not say whether Channahon was settled before Wilmington was settled. There might have been a little hamlet there. Of course, I didn't know anything about Wilmington until about 1840. There was not any house built there before the canal with lumber from Wilmington. I know every house that was built there within a radius of four or five miles

1258 of me, and the stuff came from Jack's mill and from Chicago. When they brought it from Chicago, they brought it sometimes with ox-teams, and some had horses and then they brought it with horse-teams.

Q. Mr. W. W. Stevens has also testified that a man by the name of Fish had a saloon near Au Sable, and got his whisky down from Chicago by boats.

A. I never saw anything at all at Au Sable until Mr. McNillis built a distillery there.

That was about the time of the opening of the Illinois

1259 and Michigan Canal. There was whiskey and such things brought down from Chicago to Joliet. I brought down two barrels at one time with a yoke of oxen. It must have been about 1844, because that was the year we bought our horse team; and teams were going back and forth between Joliet and Chicago,—not every day because they only went when the farmers wanted to carry their produce, and then the Joliet merchants got them to bring stuff down. There was no store in Channahon in them days. You had to go to Joliet

for your provisions. Joliet was the staple town. No,
1260 I don't think people went to Wilmington to get supplies, because Joliet was closer.

There was another saw-mill on the DuPage River besides Jack's saw-mill at an early day, but not so early as Jack's. That was located about a mile,—no, about three-quarters of a mile down the DuPage, from the road from where the broken bridge is.

I testified that I took my crop of corn in the year '35 to a grist mill at Treat's Island to be milled. I cannot say when the saw-mill was built at Treat's Island; that ain't fixed in my mind; I know it was quite a while after that,—that is after '35.

Cross-Examination.

I came to that community in 1835. I was 8½ years old. I was not here before that. I came from York State out
1261 there. The Jessup family which I mentioned lived in a log house. I did not see the log house built because it was built previous to 1835. They lived in it to 1834. Jessup and Morehouses came here in '34, and old Judge Peck came from Point Hook Landing. The Jessups and Morehouses came from Shodick's Landing. It was common talk all through the community. The community was not very large. There was the Shermerhorn, Morehouse and Jessup families came from Shodick's Landing. Quite a number of log houses were built after I came to that point. I saw some of them built and saw them after they were built. The logs came from the woods. There were plenty of woods all around there. They went to the timber and cut them down and hauled them where they wanted them and rolled them up. These logs were not transported on the water, nor transported on wagons part of the way and water part of the way. They were cut right in the timber and transported where they were wanted.
1262 Some of them were transported by wagons and some of them by log chains with cattle on,—two or three yokes, depending on the length of the log. I've seen three yoke of cattle on a log. A great many of the logs were chopped right in the timber that surrounded the mill. There was two or three hundred acres of good timber land, but they did not happen to have much walnut in that grove,—black walnut; it was principally oak and bass wood. Loge were brought from a distance, from our place, which was just about two miles above the village of Channahon.

None of these logs were transported by being floated on the water. I stated that pine lumber came from Chicago. I said pine lumber; basswood is a soft wood, but that did not come from Chicago. Pine lumber came from Chicago because there was no pine in this country, nor even in Chicago, that was shipped down.

1263 The 24th day of May, 1835, there was a raft of pine logs brought down along the lake shore, a mile and a quarter long, and they had to cut it in pieces before they could get it up in the Chicago River. I did not stop to see what became of it, because I left there the 26th. I presume it was hauled out on the beach. There were no wharves and no docks; but I suppose they had teams that hauled them out when they got them loose and they hewed them up. I didn't state this from positive knowledge, but I seen the raft come there and I seen them commence to pull them out with teams, but I didn't see them manufacture it.

I am familiar with the Desplaines River from points nearby, July, 1835, to the present day. I didn't ever see any rafts or logs either in large quantities or small quantities floated down the river; never saw any such a thing, because there was no necessity for it. There was heavy timber, and they even got saw-mills, steam saw-mills, to saw logs up,—that is, in the later days, and there was no necessity for timber to be floated on the river, because the mills were built near the timber.

1264 I have seen skiffs on the Desplaines River which carried equipments. These skiffs would probably carry two men and probably carry four or five hundred weight. I have never seen any boats on the river larger than those skiffs. It would be impossible for them to go a great ways from 1835 until the drainage floated the water down here from Chicago and from Lake Michigan. I didn't ever see any boats larger than those skiffs go short distances.

5319 CHARLES A. MUNROE, a witness for defendant, testified as follows:

Direct Examination.

My name is Charles A. Munroe. I am the Mr. Munroe, who has been referred to in the testimony here quite frequently. I am an attorney by profession. I have not practiced my profession for about two or three years. I first became identified with this project to build a dam on the Desplaines River, somewhere in the neighborhood of the Illinois in the spring of 1904. I had not any connection at that time of any nature with the Economy Light & Power Company. The first time that I had any negotiations with the Economy Light & Power Company in reference to this project was in May, the latter part of April, or the first week in April, 1906.

Q. In the meantime you had acquired flowage rights, or ownership to a large proportion of this property as shown on Woermann's Exhibit 1, June 15, 1908, and Woermann Exhibit 2, June 15, 1908, had you not?

5320 Objected to as incompetent, irrelevant and immaterial and not the best evidence; overruled.

A. I had acquired title to all of the property, contracts for title to all of the property shown in colors on those two exhibits, and had made all financial arrangements for constructing the power house and dam at the mouth of the Desplaines River.

COUNSEL FOR COMPLAINANT. I move that the latter part of the answer be stricken out.

Sustained.

COUNSEL FOR DEFENDANT. I will ask another question.

Q. Had you made any arrangements with reference to constructing this dam before you had any negotiations with the Economy Light & Power Company?

A. Yes, sir.

Q. Please state what they are.

Objected to as incompetent, irrelevant and immaterial; overruled.

A. Yes, sir; and the arrangements were completed for constructing, in the spring of 1906, a power plant at the mouth of the Desplaines River, at substantially the same location, and of the same character as the power house the Economy

Light & Power Company is now attempting to construct.

5321 Q. How many acres of land have you acquired?

COUNSEL FOR COMPLAINANT. Objected to as incompetent, irrelevant and immaterial and as not the best evidence.

A. About seventeen hundred.

Q. When did your negotiations with the Economy Light & Power Company ripen into a definite contract?

COUNSEL FOR COMPLAINANT. I suppose it is not necessary to repeat the objection.

The COURT. No; your objection may go to the whole line.

A. (Continued.) The 31st of July, 1906, the arrangements were made, subject to examination of title and were consummated by the passing of the deeds on the 30th day of November, 1906, and contemporaneous with the passing of the

5322 deeds, the trust deeds were executed bearing date December 1, 1906, to the Royal Trust Company, trustees, to secure an issue of three millions of bonds.

COUNSEL FOR DEFENDANT. How many of those bonds have been sold, if any?

Objected to; overruled.

A. Two millions of the bonds have been sold.

Q. And the trust deed executed to the Economy Light & Power Company?

A. Yes, sir.

Q. Does the trust deed convey these properties?

A. It does.

Q. Are those bonds now outstanding?

A. They are.

COUNSEL FOR COMPLAINANT. I take it that it is understood by the court and by counsel that the objections I have made, that the evidence is incompetent, irrelevant and immaterial, and not the best evidence, is reserved to each of these questions, and I make a motion to strike out all of the testimony relative to the title to the property, and the issuing of the bonds on the same grounds.

The COURT. The contents of the trust deed is not the best evidence.

5323 Counsel for defendant offered the deed of trust from the Economy Light & Power Company to the Royal Trust Company.

Objected to as incompetent, irrelevant and immaterial; overruled.

(Said deed of trust from the Economy Light & Power Com-

pany to the Royal Trust Company was received in evidence.) (Trans., p. 6302.)

5324 *Cross-Examination.*

I did not attend the taking of the depositions on the part of the State at Joliet in the early part of this year, as the attorney for the defendant. I was there at every opportunity that it was possible for me to be there. I am not an attorney for the defendant. I am an interested party in the defendant company. I am not an attorney for it. On two or three occasions, an attorney for the defendant was not there other than myself. Mr. Porter was unable to attend the meeting which had been arranged to take the depositions, and he telephoned to me and asked me if I would attend to it, and I did, to the best of my ability. I was the only attorney that was there on the part of the defendant acting for Mr. Porter. I am the same Mr. Munroe who is shown to have been in attendance by the record in the taking of the depositions. I will not say that when the record shows that I made objec-
5325 tions, and asked questions, and made statements, there was no other attorney for the defendant present. I think I injected remarks once in awhile that appear in the record where I didn't have any business to do so. Well, leaving out the word "remarks," when the record shows that "Mr. Munroe" was asking questions, I was that Mr. Munroe, and generally speaking, I did that only when there was no other lawyer for the defendant there.

Re-direct Examination.

I am and was at the time of the taking of the depositions, the General Manager and Treasurer of the company. I have not been paid any fee, or been retained and do not expect any fee as attorney in this case. I learned when I was an attorney, that a party in interest might conduct his own suit
5326 if he wanted to, but I learned it was bad policy to attempt it. My connection with the Economy Light & Power Company began when the manager of the Economy Light & Power Company died on the 12th of January, 1907, and on the 16th of that month, I was appointed to his position. It has been testified here that I have paid certain moneys to the contractor, and have made certain contracts with him; in

addition to that, the Economy Company has paid out moneys on account of the construction of this work, about $135,000. That is for machinery and wheels. In April of 1907, we purchased $142,000 worth of hydraulic machinery for this plant, upon which we paid $55,000, and engineers' expenses and payments for work done by the contractor, and to the contractor.

Q. What is your approximate estimate of the entire cost of the work?

5327 COUNSEL FOR COMPLAINANT. I suppose it is understood that my objections to this as incompetent, irrelevant and immaterial, stand to all of this supplemental evidence.

The COURT. Yes.

A. Nine hundred thousand dollars; that is exclusive of the land.

Abstract of trust deed offered at trans. p. 5323 of the record in the state case, as it appears in abstract of state case at page 1854a.

Economy Light & Power Company to Royal Trust Company.	Trust Deed dated December 1, 1906. Recorded..... Consideration, $1.00.

Property conveyed:—twenty-two (22) city lots in North Joliet,

the Dam No. 1 lease;

the lands situated in various sections in Township thirty-four (34) north, Range nine (9), Will County;

the full and free use, benefit and enjoyment of a certain stream of water called the Des Plaines River, flowing through certain lands, as it may be necessary for said Economy Light & Power Company, its successors and assigns to take, flow, injure or damage, in order to utilize the fall in said river;

and also certain other lands situated in Township thirty-five (35) north, Range ten (10), Will County;

the contract between Harold F. Griswold and the conservator of the Estate of Harvey Glidden.

the Griswold lease from the Canal Commissioners, dated September 2, 1904;

the agreement between Harold F. Griswold and Peter Conroy;

the pole line contract of the Canal Commissioners dated September 2, 1904;

the Kankakee Feeder lease between Canal Commissioners and Charles A. Munroe, dated January 5, 1905,

and all other contracts assigned by Harold F. Griswold and Charles A. Munroe to the Economy Light & Power Company.

Secures an issue of 3,000 First Mortgage 5 per cent. Bonds of $1,000 each of said Economy Light & Power Company aggregating in amount $3,000,000, said bonds being dated December 1, 1906, and payable December 1, 1956.

Article 6. 790 bonds to be issued to retire former bonds and bonds No. 791 to 2,000, inclusive, to be delivered to Trustee for certification and proceeds to be used to pay $138,000 of floating debt and $274,000 to be used for purchase of lands, flowage rights and contract rights and other property, and the remainder of the proceeds of said 1,210 bonds so far as necessary to be used to pay the cost of constructing dam, water power works, etc., and balance to be held for future sale.



IN THE

United States Circuit Court of Appeals

FOR THE SEVENTH CIRCUIT,

OCTOBER TERM, A. D. 1916.

No. 2525

ECONOMY LIGHT AND POWER COMPANY,
A CORPORATION,
Appellant,

vs.

UNITED STATES OF AMERICA,
Appellee.

MR. FRANK H. SCOTT,
Counsel for Appellant.

MR. CHARLES F. CLYNE,
Counsel for Appellee.

Appeal from the District Court of the United States for the Northern District of Illinois, Eastern Division.

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2 Pleas in the District Court of the United States for the Northern District of Illinois, Eastern Division, in Chancery sitting, at the United States Court room, in the City of Chicago, in said District and Division, before the Honorable Kenesaw M. Landis, District Judge of the United States for the Northern District of Illinois, on Friday, the twenty-fifth day of May, being one of the days of the May Term of said Court, begun Monday, the seventh day thereof, in the year of our Lord one thousand nine hundred and seventeen, and of the Independence of the United States of America, the one hundred and forty-first year. Placita.

Present:

Hon. Kenesaw W. Landis, District Judge, Presiding.
John J. Bradley, United States Marshal for said District and
T. C. MacMillan, Clerk of said Court.

m-
iled
1909.

3 IN THE CIRCUIT COURT OF THE UNITED STATES,

Northern District of Illinois,

Eastern Division.

United States of America,
vs.
Economy Light and Power Company. } 29776.

Be It Remembered, That heretofore to-wit: on the fourteenth day of December, 1909, came the United States of America, by the United States Attorney for the Northern District of Illinois, acting under the direction of the Attorney General of the United States, and filed in the clerk's office of said Court, a certain Bill of Complaint in words and figures following to-wit:

4 IN THE CIRCUIT COURT OF THE UNITED STATES,

For the Eastern Division of the

Northern Judicial District of Illinois.

United States of America
vs.
Economy Light and Power Company. } In Chancery. No. 29776

To the Judges of the Circuit Court of the United States for the Northern District of Illinois, In Chancery Sitting:

Now Comes the United States of America, by Edwin W. Sims, the United States Attorney for the Northern District of Illinois, acting under the direction of the Attorney General of the United States, and brings this, its bill, against the Economy Light and Power Company, defendant, and thereupon complaining says:

That the defendant, the Economy Light and Power Company, is a corporation duly organized under the laws of the State of Illinois, and that its office and principal place of business are in Chicago, in the County of Cook and State of Illinois;

That said defendant, the Economy Light and Power Company, without the consent of congress and without authority of the legislature of Illinois, and without the approval by the

Chief of Engineers and by the Secretary of War of the location and plans therefor has commenced the construction of a dam in the Desplaines river at a point in said river in Grundy County in the State of Illinois, and within said Northern District of Illinois, and has already constructed a part of said dam; and that the portion of said Desplaines river in which the construction of said dam has been commenced is a navigable water of the United States; Bill of plaint. Dec. 1

That said Desplaines river has its source in the State of Wisconsin, and flows in a southerly direction into the State of Illinois and through the northern portion of said state into said Grundy County in said state, where it unites with the Kankakee river and forms the Illinois river, which last named river flows through a portion of said State of Illinois into the Mississippi river;

That said defendant claims to be the riparian owner of the land along both sides of said Desplaines river at the point where the construction of said dam has been commenced; that its title to said land is based upon mesne conveyances from one Charles E. Boyer; that said Boyer obtained title to said land through deed from the Board of Trustees of the Illinois and Michigan canal, dated October 22, 1860, and conveying to said Boyer certain lands therein described as follows:

"The South fraction of the Northwest quarter (NW¼), and the North fraction of the Southeast quarter (SE¼), and the North fraction of the Northwest quarter (NW¼), and the South fraction of the Southeast quarter (SE¼), of said Section twenty-five (25) in Township thirty-four (34) North, of Range eight (8), East of the Third Principal Meridian, excepting and reserving so much of said tract as is occupied by the canal and its waters, and a strip ninety (90) feet wide on either side of said canal, containing one hundred and ninety-six and sixty-two hundredths (196.62) acres, more or less, said tract being a portion of the land granted by the United States, by Act of March 21, 1827, and the 28th day of August, 1854, to the State of Illinois, to aid said State in opening a canal to connect the waters of the Illinois river with those of Lake Michigan, and by said State granted to the said Board of Trustees of the Illinois and Michigan canal for the purposes set forth in said Act of said State of February 21, 1843:"

that the portion of said Desplaines river in which the construction of said dam has been commenced by said defendant flows through the lands described in said deed to said Boyer;

That by act of congress of March 30, 1822, entitled "An Act

to authorize the State of Illinois to open a canal through the public lands, to connect the Illinois River with Lake Mich-
6 igan," it was provided that the State of Illinois be authorized to survey and mark, through the public lands of the United States the route of the canal connecting the Illinois river with the southern bend of Lake Michigan; and that ninety feet of land on each side of said canal should be forever reserved from any sale to be made by the United States, except in the cases thereinafter provided for, and the use thereof forever vested in the said state for a canal and for no other purpose whatsoever; on condition, however, that if the said state did not survey and direct by law said canal to be opened, and return a complete map thereof to the Treasury Department, within three years from and after the passage of said act; or, if said canal be not completed, suitable for navigation, within twelve years thereafter; or, if said ground should ever cease to be occupied by, and used for, a canal suitable for navigation, the reservation and grant thereby made should be void and of none effect; that it was further provided by said act that said canal when completed, should be and forever remain, a public highway for the use of the Government of the United States, free from any toll or other charge whatever, for any property of the United States or person in their service passing through the same;

That by act of congress of March 2, 1827, entitled, "An Act to grant a quantity of land to the State of Illinois, for the purpose of aiding in opening a canal to connect the waters of the Illinois River with those of Lake Michigan," it was provided that there be granted to the State of Illinois, for the purpose of aiding the said state in opening a canal to unite the waters of the Illinois river with those of Lake Michigan, a quantity of land equal to one-half of five sections in width, on each side of the said canal, and reserving each alternate section to the United States, to be selected by the Commissioner of the Land Office, under the direction of the President of the United States, from one end of the said canal to the other; and that said land be subject to the disposal of the legislature of the said state for the purpose aforesaid, and no other; and that said canal when completed should be and forever remain a public highway for the use of the Government of the United States, free from any toll or other charge whatever, for any property of the United States or persons in their service passing through the same; and that said canal should be commenced within five years and completed in
7 twenty years, or the state should be bound to pay to the

United States the amount of any lands previously sold, and that the title to purchasers under the state should be valid; that it was further provided by said act that as soon as the route of the said canal should be located and agreed on by the said state it should be the duty of the governor thereof, or such other person or persons as might have been, or should thereafter be, authorized to superintend the construction of said canal, to examine and ascertain the particular section to which said state would be entitled under the provisions of said act, and to report the same to the Secretary of the Treasury of the United States; that said act further provided that the said state, under the authoriy of the legislature thereof, after the selection should have been so made, should have power to sell and convey the whole, or any part of said land, and to give a title in fee simple therefor, to whomsoever should purchase the whole or any part thereof; Bill of plaintiff Dec.

That prior to the passage of said acts of congress above mentioned, to wit, during the year 1821, the United States made a survey of public lands along and adjacent to said Desplaines river, including the portion thereof in which the construction of said above mentioned dam has been commenced, and caused said Desplaines river to be meandered, and fixed and determined upon its said surveys of public lands the meander lines of said river, which said surveys showing said meander lines were made, and have been continuously since the time of said surveys, a part of the public records of said United States relating to the public lands; that pursuant to said acts of congress the route of said canal was laid out by said State of Illinois, and thereafter, to wit, in December, 1829, a map showing said route was filed with the Treasury Department of said United States; that the construction of said Illinois and Michigan canal was commenced in the year 1837, and was completed in the year 1848; that by act of February 26, 1839, entitled "An Act to amend the several laws in relation to the Illinois and Michigan canal," said State of Illinois made provision for the sale and disposal of said lands granted by the United States by said act of March 2, 1827, and therein provided as follows:

"Lands situated upon streams which have been meandered by the surveys of public lands by the United States shall be considered as bounded by the lines of those surveys, and not by the stream;"

8 that in and by said act of 1839 said legislature of the State of Illinois declared it to be its understanding that said grant of March 2, 1827, did not include the land and the river

bed within said meander lines, and that said State of Illinois did not accept any grant of the land and river bed within said meander lines to be disposed of for the purpose specified in said act of March 2, 1827; that there never was any acceptance by said State of Illinois of the land and river bed within said meander lines as a part of said grant under said act of March 2, 1827, and that upon the contrary, upon the surveys of said State of Illinois showing the land accepted by it under said grant of March 2, 1827, for disposal by the state pursuant to said act, it was indicated that the land and river bed within said meander lines, including that portion of the bed of the Desplaines river where said defendant has commenced the construction of the above mentioned dam, was not included in the lands accepted by said State of Illinois to be disposed of pursuant to the terms of said act of March 2, 1827;

That by act of February 21, 1843, entitled "An Act to provide for the completion of the Illinois and Michigan canal, and for payment of the canal debt," the legislature of the State of Illinois created a board known by the style and description of the "Board of Trustees of the Illinois and Michigan canal," and for the purpose of raising a fund for the completion of said Illinois and Michigan canal authorized the governor of said state to negotiate a loan, solely on the credit and pledge of the said canal, its tolls, revenues, and lands, to be granted to said board of trustees; and for the purpose of placing in the hands of said trustees full and ample security for the payment of said loan authorized by said act and the interest thereon, as well as for securing a preference in the payment of such of the canal bonds and other evidence of indebtedness issued by said state for the purpose of aiding in the construction of said Illinois and Michigan canal as might be owned by the subscribers to the said loan the said State of Illinois by said act of February 21, 1843, assumed to grant to said board of trustees of the Illinois and Michigan canal the bed of said Illinois and Michigan canal, and the appurtenances thereto, and all the property, right, title and interest of the state, of, in and to the said canal, with all the hereditaments and appurtenances thereunto belonging, or in any wise appertaining, and also all the remaining lands and lots
9 belonging to the said canal fund, or which thereafter might be given, granted, or donated by the general government to the state, to aid in the construction of the said canal; that said act further authorized said board of trustees to take possession of said canal, lands, and property, and also pro-

vided that none of the lots, lands or water powers so granted to the said trustees should be sold until three months after the completion of said canal; that, pursuant to their authority under said act of February 21, 1843, said board of trustees of the Illinois and Michigan canal, in the year 1846, caused a survey of said lands to be made showing the lands granted by the United States and accepted by the State of Illinois, to be disposed of by said state for the purpose specified in said act of March 2, 1827; that upon said survey so made said meander lines of said Desplaines river as shown by said government survey above mentioned were designated as the boundaries of the lands granted by the United States and accepted by the State of Illinois for disposal under the terms of said act of congress of March 2, 1827; that the sale of said lands by the State of Illinois to said Boyer above mentioned was made in accordance with said survey by said board of trustees of the Illinois and Michigan canal, and that upon said survey the portion of said Desplaines river in which said defendant has commenced the construction of said dam is designated as within said meander lines and is not included among the lands granted by the United States and accepted by the State of Illinois for disposal pursuant to the terms of said act of congress of March 2, 1827. Complainant further charges that said survey of said canal commissioners was made under authority of said State of Illinois, and that the boundaries as shown thereon with respect to the lands granted by the United States and accepted by the State of Illinois for disposal in accordance with the terms of said act of March 2, 1827, were ratified, accepted and acted upon by said State of Illinois in all of its transactions relating to said lands; that under said grant of March 2, 1827, said State of Illinois did not acquire any title to or interest in that portion of the bed of the Desplaines river where said defendant has commenced the construction of said above mentioned dam, and that said Boyer by his said deed from the State of Illinois did not acquire any title to or interest in that part of the bed of said river, and that said defendant has no title to or interest in that portion of the bed of said Desplaines river where it has commenced the construction of said dam above mentioned, and that said portion of said river bed is the property of and is subject to the control of the United States.

Bill of plaint Dec

Complainant further charges that the construction of said proposed dam by said defendant will obstruct the flow of the water of said Desplaines river and will overflow the lands adjacent to said river, and that the construction of said dam

ed 1909. by said defendant is an unwarranted interference with and injury to the property of said United States, and will result in irreparable injury thereto, for which injury there is no appropriate or adequate remedy at law;

That said Illinois and Michigan canal is, and has been at all times since its completion in 1848, an artificial navigable waterway of the United States connecting Lake Michigan and the Chicago river with the Illinois and the Mississippi rivers; that said canal joins the Chicago river at a point in Cook County, Illinois; that it passes through portions of the counties of Cook and Will, and connects with said Desplaines river at a point in said Will County near and above the City of Joliet; that said canal follows the bed of said Desplaines river for a distance of between one and two miles, and that at that place the channel of the canal forms the channel of said Desplaines river; that said canal then diverges from said Desplaines river and parallels the course of said river and of the Illinois river, and passes through portions of said Will county and of Grundy and LaSalle counties, and connects with said Illinois river at LaSalle in said LaSalle county; that the place at which said defendant has commenced the construction of said above mentioned dam is about fifteen miles below the point at which said Illinois and Michigan canal diverges from said Desplaines river;

That, after the completion of said canal in 1848, a portion of the water flowing through it was taken from Lake Michigan through said Chicago river, and a portion of the water flowing in said canal after it diverges from said Desplaines river was taken and diverted from said Desplaines river;

That by act of the Illinois legislature of February 28, 1839, it was provided that said Desplaines river, from a point where it most nearly connects itself with the Illinois and Michigan canal to its sources within the boundaries of said State of Illinois, was thereby declared to be a navigable stream, and that it should be deemed and held a public highway and should be and remain free, open and unob-
11 structed for the passage of all boats and water crafts of every description; that by the terms of the ordinance of 1787 it was provided that the navigable waters leading to the Mississippi and St. Lawrence rivers, and the carrying places between the same, shall be common highways and forever free, as well to the inhabitants of the said territory as to the citizens of the United States, and those of any other states that may be admitted into the confederacy, without tax, impost, or duty therefor;

That by the statute of 1846, ch. 89, sec. 3, admitting Wisconsin into the union as a state, it was enacted that the Mississippi and other rivers bordering on said state, and the navigable waters leading into the same, shall be common highways, and forever free, as well to the inhabitants of said state as to all other citizens of the United States, without any tax, duty, impost or toll therefor; that said portion of said Desplaines river within said State of Wisconsin is a navigable stream; and that by virtue of said ordinance of 1787, said act of the congress and said act of the Illinois legislature last above mentioned, the portions of said Desplaines river covered thereby became and are navigable waters of the United States.

Bill of plaint. Dec. 14

Complainant further charges, upon information and belief, that the portion of said Desplaines river between the point at which said Illinois and Michigan canal diverges from said river and its mouth, including the point at which said defendant has commenced the construction of said above mentioned dam, was in its natural condition navigable in fact; that in such natural condition it was capable of use by the public for purposes of navigation, and that by virtue of its connection with the Illinois and Mississippi rivers it formed a highway capable of being used for purposes of interstate and foreign commerce; that the obstructions to the navigability of said river in certain points in said portion of the river arising from shallow places and rapids in the river were capable of being removed and overcome by the improvement of said river, and that pending said improvement said navigable river, irrespective of said shallow places and rapids, is to be deemed an unbroken highway of interstate and foreign commerce, subject to the care and protection of the United States.

Complainant further represents that upon the completion of said Illinois and Michigan canal said portion of said
12 Desplaines river below the point of its connection with said canal by reason of its connection with said canal and the Illinois river formed a part of a continuous highway for interstate and foreign commerce embracing Lake Michigan, the Chicago river, the Illinois and Michigan canal, the Desplaines and Illinois rivers, and the Mississippi river; that by virtue of the connection of said Desplaines river with said other navigable waters of the United States and its relation thereto, said portion of said Desplaines river, without regard to obstructions to navigation at certain places on account of shallow places and rapids, was and is a part of a system

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of navigable waters of the United States, and is to be deemed a navigable water of the United States, subject to the jurisdiction and control of the federal government.

Complainant further represents that by act of May 29, 1889, entitled, "An Act to create sanitary districts, and to remove obstructions in the Desplaines and Illinois rivers," provision was made for the construction under authority of the State of Illinois of a canal connecting the Chicago river with said Desplaines river, through which a large quantity of water was to be diverted from Lake Michigan into said Desplaines river; that it was provided by said act that the channel to be constructed under the provisions thereof should be constructed of sufficient size and capacity to produce and maintain at all times a continuous flow of not less than 300,000 cubic feet of water per minute, and to be of a depth of not less than fourteen feet and with a current not exceeding three miles per hour; that if any portion of any such channel should be cut through a territory with a rocky stratum, where such rocky stratum is above a grade sufficient to produce a depth of water from Lake Michigan of not less than eighteen feet, such portion of said channel should have double the flowing capacity above provided for, and a width of not less than one hundred and sixty feet at the bottom, capable of producing a depth of not less than eighteen feet of water;

That it was further provided by said act that if the population of the district created by said act, draining into such channel, shall at any time exceed 1,500,000, such channel shall be made and kept of such size and in such condition that it will produce and maintain at all times a continuous flow of not less than 20,000 cubic feet of water per minute for each 100,000 of the population of such district, at a current of not more than three miles per hour, and if at any time
13 the general government shall improve the Desplaines or Illinois rivers, so that the same shall be capable of receiving a flow of 600,000 cubic feet of water per minute, or more, from said channel, and shall provide for the payment of all damages which any extra flow above 300,000 cubic feet of water per minute from such channel may cause to private property so as to save harmless the said district from all liability therefrom, then such sanitary district shall within one year thereafter, enlarge the entire channel leading into said Desplaines or Illinois rivers from said district to a sufficient size and capacity to produce and maintain a continuous flow throughout the same of not less than 600,000 cubic feet of water per minute, with a current of not more than three miles

per hour, and such channel shall be constructed upon such grade as to be capable of producing a depth of water not less than eighteen feet throughout said channel, and shall have a width of not less than one hundred and sixty feet at the bottom; that, in case a channel is constructed in the Desplaines river as contemplated in said act, it shall be carried down the slope between Lockport and Joliet to the pool commonly known as the upper basin of sufficient width and depth to carry off the water the channel shall bring down from above; Bill of complaint, Dec. 14,

That it is further provided in said act that the district constructing a channel to carry water from Lake Michigan of any amount authorized by said act, may correct, modify and remove obstructions in the Desplaines and Illinois rivers wherever it shall be necessary so to do to prevent overflow or damage along said river, and shall remove the dams at Henry and Copperas Creek in the Illinois river, before any water shall be turned into the said channel; and it is further provided by said act that whenever the board of trustees of said sanitary district shall pass an ordinance for the making of any improvement which such district is authorized to make, the making of which will require that private property should be taken or damaged, such district may cause compensation therefor to be ascertained and condemn and acquire possession thereof in the same manner, as nearly as may be, as is provided in an act entitled, "An Act to provide for the exercise of the right of eminent domain," approved April 10, 1872, provided, however, that proceedings to ascertain the compensation to be paid for taking or damaging private property should in all cases be instituted in the county where the property sought to be taken or damaged is situated; that
14 it is further provided in said act that said sanitary district constructing said canal shall be liable for all damage to real estate within or without such district which shall be overflowed or otherwise damaged by reason of the construction, enlargement or use of any channel, ditch drain, outlet or other improvement under the provisions of said act, and that actions to recover such damages may be brought in the county where such real estate is situate or in the county in which such sanitary district is located, at the option of the party claiming to be injured; that it is further provided in said act that when it shall be necessary, in making any improvements that said district is authorized by said act to make, to enter upon any public property, or property held for public use, such district shall have the power to do so, and

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may acquire the necessary right of way over such property held for public use in the same manner as is above provided for acquiring private property, and may enter upon, use, widen, deepen and improve any navigable or other waters, waterways, canal or lake; that it is further provided by said act that when said channel of said sanitary district shall be completed and the water turned therein to the amount of 300,000 cubic feet of water per minute, the same is thereby declared a navigable stream, and that whenever the general government shall improve the Desplaines and Illinois rivers for navigation to connect with said channel, said general government shall have full control over the same for navigation purposes, but not to interfere with its control for sanitary or drainage purposes;

That pursuant to the provisions of said act of March 29, 1889, and under the authority of said State of Illinois, the Sanitary District of Chicago, created pursuant to the provisions of said act, did construct a canal connecting the Chicago river with said Desplaines river; that said canal connects with said Desplaines river at a point about one and one-third miles above the point at which the Illinois and Michigan canal connects with said river; that upon the completion of said sanitary district canal, and prior to the commencement of the construction by the defendant of the dam in the Desplaines river hereinabove mentioned, to wit, in the year 1900, said Sanitary District of Chicago, pursuant to its said authority from the State of Illinois, did divert through said canal from Lake Michigan into said Desplaines river, water to the amount of about 300,000 cubic feet per minute, and that continually since the opening of said sanitary district canal there has been diverted from Lake Michigan through said canal into said Desplaines river, at a point above that at which said defendant has commenced construction of said above mentioned dam, a quantity of water amounting to about 300,000 cubic feet per minute; that said sanitary district canal, so constructed under authority of the State of Illinois, is, and has been since the opening of said canal in 1900, water navigable in fact, and is, and has been since said time, a part of the navigable waters of the United States, and subject to the jurisdiction and control of the federal government; that in connection with the construction of said sanitary district canal, and in creating the system of waterways resulting from the construction of said canal, said State of Illinois has caused the quantity of water flowing through said Desplaines river below the point at which it connects with said canal, to be largely increased,

and that said portion of said river has been continuously, since the opening of said canal, and is now water navigable in fact and a part of the navigable waters of the United States and subject to the jurisdiction and control of the federal government; that since said State of Illinois has thus artificially increased the quantity of water flowing through said portion of said Desplaines river, the only substantial obstructions to the navigability of said river are certain rapids between the portion of said river known as the upper basin, namely, the portion of said river in which it follows the channel of the Illinois and Michigan canal, and the portion of said river known as Lake Joliet, and certain other rapids at Treat's Island and Dresden Heights in said river; that, with the exception of the difficulties arising on account of said rapids said river has been, since the opening of said sanitary district canal, and now is, capable of being navigated for the purposes of commerce, and that difficulties arising on account of said rapids abve mentioned are capable of being overcome through the improvement of said river by locks, canals and dams.

Bill of complaint, Dec. 14,

Complainant further charges that in connection with, and as a result of, the construction of said sanitary district canal and the diversion of said water from Lake Michigan, said Sanitary District of Chicago, acting under authority of said State of Illinois, has largely increased the navigability of said Desplaines river, and that continuously since the opening of said canal there has been and is in said portion of said Desplaines river, below the point at which it connects with
16 said canal, a body of water navigable in fact, and which by virtue of its connection with other navigable waters is to be deemed a part of the navigable waters of the United States, and subject to the jurisdiction and control of said United States; that the control of said United States over said body of navigable water in the exercise of its power to regulate commerce, exists irrespective of controversies between said State of Illinois and property owners along said Desplaines river as to compensation for damages alleged to have been inflicted through the diversion of said water from Lake Michigan into said Desplaines river; and that said power of control of said United States over said body of water is in no respect diminished or taken away by the failure of said State of Illinois or its agency, said Sanitary District of Chicago, to compensate said property owners along said Desplaines river for property rights which have been damaged or lost

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by reason of said diversion of water from Lake Michigan into said Desplaines river.

Complainant further represents that by section 9 of the river and harbor appropriation act of March 3, 1899, ch. 425, it is provided:

"That it shall not be lawful to construct or commence the construction of any bridge, dam, dike, or causeway over or in any port, roadstead, haven, harbor, canal, navigable river or other navigable water of the United States until the consent of Congress to the building of such structures shall have been obtained and until the plans for the same shall have been submitted to and approved by the Chief of Engineers and by the Secretary of War; Provided, That such structures may be built under authority of the legislature of a State across rivers and other waterways the navigable portions of which lie wholly within the limits of a single State, provided the location and plans thereof are submitted to and approved by the Chief of Engineers and by the Secretary of War before construction is commenced;"

That in the year 1907 said defendant commenced the construction of said dam in said Desplaines river, and has already constructed a portion thereof; that said defendant has never obtained the consent of congress to the building of said dam, nor have the location and plans for the construction of said dam been approved by the Chief of Engineers and by the Secretary of War, as required by said act; and that, on the contrary, said defendant asserts and maintains that said Desplaines river is not a navigable river or a navigable water of the United States, and that the authority and permission provided by said act of March 3, 1899, is not required for the construction of said dam; that said defendant has refused, and refuses, to remove the portion of said dam already constructed, and threatens to, and will, complete the construction of said dam unless prevented by the injunction of this court. Complainant further charges that the portion of said dam already constructed is a structure erected in violation of the provisions of said act of March 3, 1899, and that if the construction of said dam is completed by said defendant said structure will be a permanent obstruction in said river, and will irreparably injure and damage the rights and property of the United States relating to and connected with the system of navigable waters hereinabove mentioned.

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In consideration whereof, and inasmuch as adequate rem-

edy in the premises can only be obtained in this court, the United States of America prays this court to order, adjudge and decree that said Desplaines river is a navigable river, and one of the navigable waters of the United States; that the portion of said dam which has been constructed by said defendant as hereinabove set forth, is a structure erected in violation of the provisions of section 9 of the Act of March 3, 1899, and that its removal should be enforced by the injunction of this court; that the threatened completion of said dam by said defendant without the permission and authority required by said act will be contrary to the provisions of said act, and will result in irreparable injury and damage to the property and rights of the United States, and that said defendant, its officers and agents, and all persons acting for it, should be enjoined perpetually from placing any further obstruction in said Desplaines river, and from doing any other act or performing any other work in connection with the erection or construction of said dam.

Bill of complaint, Dec. 14,

To the end, therefore, that the United States of America may obtain the relief to which it is justly entitled in the premises, may it please Your Honors to grant to it the writ of subpoena directed to said defendant, the Economy Light and Power Company, commanding it to appear herein and answer, but not under oath (answer under oath being hereby expressly waived), the allegations contained in the foregoing bill of complaint, and abide by and perform such order
18 and decree as the court may make in the premises and upon hearing hereof to permanently enjoin the defendant as hereinbefore prayed, and pending the final hearing of this cause, cause a temporary restraining order to issue enjoining said defendant, its officers, agents and servants, and all persons acting for it, as hereinbefore prayed.

GEORGE W. WICKERSHAM,
Attorney General of the United States.
EDWIN W. SIMS,
United States Attorney for the Northern District of Illinois.
JAMES H. WILKERSON,
Special Assistant United States Attorney.

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19 United States of America,
Northern District of Illinois, } ss.
Eastern Division.

Edwin W. Sims, having been first duly sworn, says that he is United States Attorney for the Northern District of Illinois; that he has read the foregoing bill of complaint and knows the contents thereof; that the same is true of his own knowledge except as to those matters therein stated on his information and belief, and as to those matters he believes them to be true. He further states that he is authorized to sign said bill of complaint for the United States of America, the complainant therein, by the Attorney General of the United States.

EDWIN W. SIMS,

Subscribed in my presence and sworn to before me this 14th day of December, A. D. 1909.

WILLIAM A. SMALL,
(Seal) *Notary Public.*

(Endorsed) Filed Dec. 14, 1909. H. S. Stoddard, Clerk.

20 And afterwards to-wit: on the twenty-eight day of February, 1910, came the defendant in said entitled cause by its solicitors and filed in the clerk's office of said court, its certain Answer in words and figures following towit:

21 IN THE CIRCUIT COURT OF THE UNITED STATES Answer, Feb. 2[illegible]

Northern District of Illinois,

Eastern Division.

United States of America
vs.
Economy Light & Power Company.

ANSWER OF THE ECONOMY LIGHT AND POWER COMPANY, DEFENDANT, TO THE BILL OF COMPLAINT OF THE UNITED STATES OF AMERICA, COMPLAINANT:

This defendant, reserving to itself all right of exception to the said Bill of Complaint, and reserving to itself the same rights under this answer as if it had demurred or pleaded to said Bill of Complaint for the matters and things herein set forth, says:

First. That said bill is multifarious, in that it joins a cause of action which affects only the alleged property rights of the United States, in and to the land and river bed within the meander lines of the Desplaines River, and in which the public have no right or interest, with a cause of action wherein the United States, in its sovereign political capacity, is seeking to enforce the alleged rights of the public in and to such stream as a navigable water of the United States, a matter in which said United States has, and claims, no property rights.

Second. That the allegations of said bill as to the ownership by complainant of the lands and river-bed within the meander lines of said Desplaines River, do not state a cause of action cognizable in a court of equity.

22 Third. That said bill, while claiming that the title to the lands and river-bed within the meander lines of said Desplaines River is in complainant, shows that there is an adverse claim of ownership of said lands by the defendant and does not show that the title of complainant to said lands has been determined in an action at law.

Fourth. That said bill, while alleging that the Desplaines River is a navigable stream, claims that the title of the United States in and to the land in the bed of said stream in that portion of said stream in Section 25, Township 34 North

Filed 1910. of Range 8 East of the Third Principal Meridian, in Grundy County, Illinois, in which defendant is seeking to construct its dam, never passed to the State of Illinois.

Fifth. That said bill alleges that by reason of the additional water discharged into it from the channel of the Sanitary District of Chicago, the Desplaines River has become a navigable stream and claims relief on that ground.

Sixth. That said bill alleges that by virtue of the ordinance of 1787, said Desplaines River became navigable waters of the United States.

Seventh. That said bill alleges that by virtue of the Act of the Legislature of Illinois of February 28, 1839, the portion of said Desplaines River therein referred to became navigable waters of the United States.

Eighth. That said bill alleges that by virtue of the Act of Congress admitting Wisconsin into the Union, the portion of said Desplaines River situated within the State of Wisconsin became navigable waters of the United States.

Ninth. That said bill does not allege that the dam,
23 the construction of which it seeks to restrain, will interfere with commercial navigation upon said river.

Tenth. That said bill does not allege that there is any commercial navigation upon said river which will be interfered with or obstructed by the completion or maintenance of said dam.

Eleventh. That said bill shows that defendant is in possession of the land and river-bed, within the meander line of said Desplaines River in said Section 25, Township 34, Range 8 East of the Third Principal Meridian, in Grundy County, Illinois, under bona fide claim of title thereto, deduced from the State of Illinois, and seeks to divest defendant of its title thereto, and this defendant, by virtue of the seventh amendment to the constitution of the United States and Section 5 of Article II of the constitution of the State of Illinois, has a right to have its title determined in a court of law by a jury.

Twelfth. That by virtue of Section 35 of Chapter 45 of the Revised Statutes of the State of Illinois, this defendant is entitled to have its claim of title determined in two separate trials before two separate juries.

And defendant prays the same benefit and advantage of the above matters as if it had specifically pleaded or demurred to said bill therefor.

This defendant not waiving all or any of said grounds of demurrer, but insisting and relying upon each of them, further answering, says:

That it admits that it is a corporation duly organized under the laws of the State of Illinois, but denies that its office and principal place of business is in Chicago, in the County of Cook. Answer Feb. 28

Further answering, defendant admits that without the consent of Congress, and without the authority of the
24 Legislature of Illinois, and without the approval by the chief of engineers or the secretary of war (except as hereinafter set out) of the location and plans therefor, it has commenced the construction of a dam in the Desplaines River at a point in said river in Grundy County, in the State of Illinois, and within said Northern District of Illinois, and has already constructed a part of said dam; but denies that the portion of said Desplaines River in which the construction of said dam has been commenced is navigable water of the United States, or that it is a navigable water.

Defendant admits that said Desplaines River has its source in the State of Wisconsin and flows in a southerly direction into the State of Illinois, and through the northern portion of said State, into Grundy County, in said State, where it unites with the Kankakee River and forms the Illinois River, and that last named river flows through a portion of the State of Illinois into the Mississippi River, as is alleged in said Bill of Complaint.

Defendant admits that it claims to be the riparian owner of land along both sides of the said Desplaines River, at the point where the construction of said dam has been commenced, and admits that its title to said land is based upon mesne conveyances from one Charles E. Boyer, and that said Boyer obtained title to said land through a deed from the Board of Trustees of the Illinois and Michigan Canal, dated October 22, 1860, and conveying to said Boyer certain land therein described, substantially as set forth in said Bill of Complaint, and that the portion of said Desplaines River in which the construction of said dam has been commenced by this defendant flows through the land described in said deed to Boyer.

25 This defendant admits the adoption by Congress of the Act of March 30, 1822, entitled "An Act to authorize the State of Illinois to open a canal through the public lands, to connect the Illinois River with Lake Michigan," but for the provisions of said Act it refers to 3 U. S. Stats, at large, page 269, et seq., where said act in full and at length appears. But this defendant avers that the State of Illinois did not comply with the provisions of said act, and that said act, by the terms thereof, became "void and of none effect."

Filed 1910.

This defendant admits the adoption by Congress of the Act of March 2, 1827, entitled "An Act to grant a quantity of land to the State of Illinois, for the purpose of aiding in opening a canal to connect the waters of the Illinois River with those of Lake Michigan," for the provisions of which act it refers to 4 U. S. Stats. at large, page 234, et seq., where said act in full and at length appears.

Defendant admits that by said act of 1827 there was granted to said State of Illinois, for the purpose of aiding the State in opening a canal to unite the waters of the Illinois River with those of Lake Michigan, a quantity of land equal to one-half of five sections in width on each side of said canal. And defendant avers that it was provided in such act that such land should be subject to the disposal of the Legislature of the State, for the purpose aforesaid and no other, that so soon as the route of said canal should be located and agreed upon by said State, it should be the duty of the Governor thereof, or of such other person or persons as should have been authorized to superintend the construction of said canal, to examine and ascertain the particular sections to which the State would be entitled under the provisions of said
26 act and report the same to the Secretary of the Treasury of the United States, that after the selection of such lands should have been so made, the State under the authority of its Legislature, should "have power to sell and convey the whole or any part of said lands, and give a title in fee simple therefor, to whomsoever should purchase the whole or any part thereof."

And defendant avers that on, to-wit, the 22nd day of January, 1829, the Legislature of the State of Illinois passed an act authorizing the Governor of the State, by and with the advice of the Senate, to appoint three commissioners, whose duty it should be, among other things, to superintend the construction of said canal and to select the alternate sections of land granted to said State as aforesaid and that pursuant to such act, the Governor of the State of Illinois, by and with the consent of the Senate thereof, appointed commissioners of the Illinois and Michigan Canal, for the purposes and with the powers in said act provided; that pursuant to said act of Congress of December 2, 1827, and said act of the Legislature of Illinois of January 22, 1829, the route of said canal was laid out; and that in December, 1829, the said Canal Commissioners did select each alternate section having an odd number along the route of said canal. And defendant admits that in December, 1829, a map showing the route of said canal

and the land so selected by the Canal Commissioners was filed with the Treasury Department of the United States. And defendant avers that by virtue of said act of Congress of March 2, 1827, and the act of the Legislature of the State of Illinois of January 22, 1829, and the location of the route of the Illinois and Michigan Canal, and the selection by said
27 commissioners of the Illinois and Michigan Canal of lands thereunder, each alternate section having an odd number along the route of said canal, including the land and river bed within the meander lines of said Desplaines River in said Section 25 vested in the said State of Illinois, immediately upon the filing of said map showing the route of said canal, and that thereupon said state, under authority of its Legislature, had full power to sell, convey and give title to any and all of said lands, including the bed of said stream, in said Section 25. Answer Feb.

This defendant admits that prior ot the passage of said act of Congress above mentioned, to-wit, during the year 1821, the United States made a survey of public lands along and adjacent to the said Desplaines River, including the portion thereof in which the construction of said above mentioned dam has been commenced, but denies that it caused said Desplaines River to be meandered, or fixed and determined upon its said survey of public lands the meander lines of said river, or that such surveys showing said meander lines were made, or have been continuously since the time of said surveys, a part of the public records of said United States relating to the public lands.

Defendant admits that the construction of said Illinois & Michigan Canal was commenced in the year 1837, and was completed in the year 1848; admits the adoption by the legislature of the State of Illinois of the Act of February 26, 1839, entiiled "An Act to amend the several laws in relation to the Illinois & Michigan Canal," and for the provisions of said act it refers to the laws of Illinois of 1839, page 177, et seq., where said act in full and at length appears. Defendant denies that it was provided in said act that "lands situated upon streams which have been meandered by the sur-
28 veys of public lands by the United States shall be considered as bounded by the lines of those surveys, and not by the stream," but avers that it was provided in Section 2 that in all sales of lands and lots under the provisions of said act certain conditions should be annexed, and should compose a part of the contract, which conditions included the provision hereinabove last quoted. Defendant denies that

ed. 1910. in or by said act of 1839 the legislature of the State of Illinois declared it to be its understanding that said grant of March 2, 1827, did not include the land and the river bed within said meander lines, and denies that said State of Illinois did not accept any grant of land and river bed within said meander lines to be disposed of for the purpose specified in said act of March 2, 1827, and denies that there never was any acceptance by said State of Illinois of the land and river bed within said meander lines as a part of said grant under said act of March 2, 1827, and denies that upon the surveys of said State of Illinois, showing the land accepted by it under said grant of March 2, 1827, for disposal by said state pursuant to said act, it was indicated that the land and river bed within said meander lines, including that portion of the bed of the Desplaines River where this defendant has commenced the construction of its said dam, was not included in the lands accepted by said State of Illinois, to be disposed of pursuant to the terms of said act of March 2, 1827, but, on the contrary thereof, this defendant avers that the said State of Illinois has at all times insisted and declared, and does now insist and declare, that by the said grant of March 2, 1827, and the selection by the Canal Commissioners of each alternate section under said grant, and the filing of said map
29 with the Treasurer of the United States, the title to the land and the river bed within the said meander lines passed from the said United States to the said State of Illinois for the purpose of aiding in opening a canal to connect the waters of the Illinois River with those of Lake Michigan, as set forth in said act.

Defendant avers that if said Desplaines River is a navigable stream, as alleged in said bill of complaint, which defendant denies, then the title to the bed of said stream passed from the United States to the State of Illinois upon the admission of said State into the Union in 1818.

Defendant admits the adoption by the legislature of the State of Illinois of the act of February 21, 1843, entitled "An Act to provide for the completion of the Illinois & Michigan Canal, and for the payment of the canal debt," and for the provisions thereof defendant refers to the laws of Illinois of 1843, page 54, et seq., where said act in full and at length appears. And defendant avers that said act authorized said Board of Trustees to take possession of said canal lands, property and assets granted to them by said act and to proceed to complete said canal; and this defendant avers that the commissioners appointed pursuant to said act did take

possession of said canal, lands, property and assets, including the lands within the meander lines and the bed of said river in said Section 25, and after the completion of said canal in 1848 proceeded to sell the lands in payment of said canal debt, and avers that under and by virtue of said act of February 21, 1843, the said Board of Trustees sold and conveyed to defendant's predecessor in title, Charles E. Boyer, the lands in said Section 25, including the lands within the meander lines and in the bed of said river whereon defendant is constructing its said dam. Answer, Feb. 2

But defendant denies that pursuant to authority under said act of February 21, 1843, said Board of Trustees of the Illinois & Michigan Canal, in the year 1846, caused a survey of said lands to be made, showing the lands granted by the United States and accepted by the State of Illinois, to be disposed of by said State for the purpose specified in said act of March 2, 1827, and denies that upon said alleged survey the meander lines of said Desplaines River, as alleged to have been shown by said government survey mentioned in said bill of complaint were designated as the boundaries of lands granted by the United States and accepted by the State of Illinois for disposal under the terms of said act of Congress of March 2, 1827, and avers that said Trustees had no power to limit by survey or otherwise the quantity of land granted to or accept by said State of Illinois under said act of Congress of March 2, 1827, or the quantity of land granted to them by said act of February 21, 1843, and denies that the sale of said lands by said State of Illinois to said Boyer, this defendant's predecessor in title, was made in accordance with said alleged survey of said Board of Trustees of said Illinois & Michigan Canal, and denies that upon said survey the portion of said Desplaines River in which this defendant has commenced the construction of said dam, is designated as within said meander lines, or that it is not included among the lands granted by the United States and accepted by the State of Illinois for disposal, pursuant to said act of Congress of March 2, 1827; denies that the alleged survey of said Board of Trustees was made under authority of the State of Illinois, or that the boundaries, as alleged to have been shown thereon with respect to the lands granted by the United States and accepted by the State of Illinois, for disposal in accordance with the terms of said act of March 2, 1827, were ratified, accepted or acted upon by said State of Illinois in all or any of its transactions relating to said lands, and denies that under said grant of March 2, 1827, said State of

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Illinois did not acquire any title to or interest in that portion of the bed of the Desplaines River where this defendant has commenced the construction of the dam mentioned in said complaint, or that said Boyer, by said deed from the said Board of Trustees of the Illinois & Michigan Canal, did not acquire any title to or interest in that part of the bed of said river, and denies that this defendant has no title to or interest in that portion of the bed of said Desplaines River where it has commenced the construction of its dam above mentioned, and denies that said portion of said river bed is the property of, or is subject to the control of, the United States. And defendant avers that it and its predecessors in title have been in undisturbed and peaceable possession of the land and river bed within the meander lines of said Desplaines River, in said Section 25, for over fifty years under bona fide claim of title thereto; and that the claim of the United States thereto is stale; and that the said United States ought not at this day to be heard in a court of equity to claim title thereto.

This defendant admits that the construction of its said dam will obstruct the flow of the water of the said Desplaines River to some extent and will overflow the lands adjacent to said river, but it denies that construction of said dam by defendant is an unwarranted interference with or injury to the property of said United States, or that it will result in irreparable, or any, injury thereto, but, on the contrary
32 thereof, defendant alleges that all of the land along said river which will be overflowed by the construction of said dam belongs to this defendant, and that no injury will result to any property of the United States by the construction of said dam.

Defendant admits that the Illinois & Michigan Canal is and has been, since its completion in 1848, an artificial navigable waterway connecting the Chicago River with the Illinois River, but denies that said canal is a navigable waterway of the United States; admits that said canal passes through portions of the counties of Cook and Will, and connects with said Desplaines River at a point in Will County near and above the City of Joliet; that said canal follows the bed of said Desplaines River for a distance of between one and two miles, and that at that place the channel of the canal and the channel of the river occupy the same space, and that said canal then diverges from said Desplaines River and parallels the course of said river and of the Illinois River, and passes through portions of Will, Grundy and La Salle counties, and connects with the said Illinois River at La Salle, in La Salle

County; that the place at which defendant has commenced the construction of its dam is about fifteen miles below the point at which the Illinois & Michigan Canal diverges from said Desplaines River. Answer, Feb.

Defendant admits that after the completion of the canal in 1848, a portion of the water flowing through it was taken from Lake Michigan, through said Chicago River, and that a portion of the water flowing in said canal after it diverges from said Desplaines River was taken and diverted from the Desplaines River.

Defendant admits the adoption by the legislature of the State of Illinois of the act of February 28, 1839, mentioned in said bill of complaint, but for the provisions of said
33 act it refers to the laws of 1839 of the State of Illinois, page 208, where said act in full and at length appears. But defendant avers that the point at which it is building its said dam is not in that part of said Desplaines River referred to in the said act, and that it is not competent for the State of Illinois to create a navigable stream by a statutory declaration of navigability.

Defendant admits that it was provided in the ordinance of 1787 that the navigable waters leading into the Mississippi and St. Lawrence and the carrying places between the same should be common highways, and forever free as well to the inhabitants of said territory as to the citizens of the United States and those of any other states that might be admitted into the confederacy, without any tax, imposed or duty therefor, but defendant avers that upon the admission of Illinois into the Union as a state in 1818, that provision of the ordinance of 1787 cease to have any force or effect within said State.

Defendant denies that the provisions of the statute of 1846, page 89, section 3, admitting Wisconsin into the Union as a state, applies to said Desplaines River, and denies that the portion of the Desplaines River within the said State of Wisconsin, or that portion thereof within the State of Illinois ever were, or now are, navigable, or that said Desplaines River ever was or now is a navigable water of the United States, and denies that said ordinance of 1787, or said act of Congress admitting Wisconsin into the Union, or the said act of the Illinois legislature referred to in said bill of complaint, or all of them, had the effect of making said Desplaines River or any portion thereof navigable waters or navigable waters of the United States, or in any wise affected the char-

Filed Dec. 8, 1910.

acter of said stream or the rights of riparian owner thereon.

34 This defendant denies that the portion of said Desplaines River between the point at which said Illinois and Michigan Canal diverges from said river and its mouth, including the point at which this defendant has commenced the construction of its said dam, was in its natural condition navigable in fact; denies that in such natural condition it was capable of use, or ever was used, by the public for purposes of navigation; denies that by virtue of its connection with the Illinois and Mississippi Rivers it formed a highway capable of being used for purposes of interstate or foreign commerce; admits that the obstructions to the navigability of said river arising from shallow places and rapids in this river, are capable of being removed and overcome by the improvement of said river; but avers that such obstructions can only be removed or overcome by the construction of dams and channels in said river of such extent and nature as to entirely change the character of said river, and create a navigable stream where none now exists; and denies that pending such improvements, said river, irrespective of such shallow places and rapids, is to be deemed an unbroken highway of interstate or foreign commerce or of intrastate commerce, or that it is subject to the care and protection of the United States.

Defendant denies that upon the completion of said Illinois and Michigan Canal, said portion of said Desplaines River below the point of its connection with said canal, by reason of its connection with said canal and the Illinois River, formed a part of a continuous highway for interstate or foreign commerce, embracing Lake Michigan, the Chicago River, the Illinois and Michigan Canal, the Desplaines and Illinois Rivers, and the Mississippi River, or that by virtue of the

35 connection of said Desplaines River with said navigable waters of the United States, or its relation thereto, said portion of the Desplaines River, without regard to obstructions to navigation at certain places, or on account of shallow places and rapids, was or is a part of a system of navigable waters of the United States, or is to be deemed a navigable water or navigable water of the United States or subject to the jurisdiction and control of the Federal Government.

But, on the contrary, defendant avers that the said Desplaines River in its original or natural state or condition was not, and that it is not now, a navigable stream and was not, and is not, capable of being navigated for purposes of com-

merce, and that said stream has never been used for purposes of useful or commercial navigation. Answer, filed Feb. 28, 1

Defendant avers that the United States has during a period of over one hundred years treated said Desplaines River as a non-navigable stream; that it has several times had said stream surveyed for the purpose of ascertaining the possibility of creating a navigable channel therein but that the reports of engineers making said surveys have shown that said stream was not a navigable stream; and that it has, without protest, permitted dams and bridges to be constructed in, over and across, said stream from the earliest day down to the present time without its consent, and has in fact never exercised or attempted to exercise any jurisdiction or control over said stream or any part thereof.

Defendant further avers that one Charles A. Munroe and associates, during the year 1904, acquired by purchase from the owners thereof, some 1,800 acres of land lying on both sides of the Desplaines River in Will and Grundy Coun-
36 ties, the ownership of which gave to the said Munroe and associates the right to construct a dam at the mouth of the Desplaines River.

Defendant avers that before the beginning of the construction of its said dam, and in order that said dam might be located at such a point as would contribute to a waterway, if one should ever be constructed in said stream, said Charles A. Munroe submitted the plan of said proposed dam to the War Department of the United States and requested that said Department would give some expression of opinion as to whether or not the plans submitted would be in harmony with the work of improvement proposed—but not then, nor at any time thereafter determined on—by the United States Government, to-wit: the construction of a navigable waterway from Lockport, Illinois, to St. Louis, Missouri, via the Desplaines, Illinois and Mississippi Rivers; and that thereupon the Chief of Engineers of the United States Army referred the matter to Lieutenant-Colonel W. H. Bixby of the Corps of Engineers of the United States Army in charge of the district in which said proposed work was to be constructed, to examine said plans and said proposed work and to report his recommendations thereon; that thereupon the said Bixby reported to the Chief of Engineers of the United States Army as follows:

of
. Bixby,
Mar.
906.

United States Engineer Office,
508 Federal Building,
Chicago, Ill., March 27, 1906.

Brig. Gen. A. Mackenzie,
Chief of Engineers, U. S. Army,
Washington, D. C.

General:

1. In reply to Department letter (E. D. 58726) dated March 16, 1906, as to the proposed plans of a water power
37 company for a dam across the Desplaines river, Ill., just above its mouth, which have been verbally and informally presented to your office by the Hon. H. M. Snapp and the water power representatives, I have herewith to submit report as follows:

2. The dam in question is that proposed by Chas. A. Munroe, of Chicago, Ill., as explained by his letter to this office under date of March 20, 1906, with inclosures (copies herewith—2 letters, 3 blueprints), (5 incls.).

3. The Desplaines River, so far as now known to this office, has never yet been considered a navigable stream of the United States. It is therefore apparently as yet subject only to such jurisdiction as applies to all other unnavigable streams and not subject to the provisions of Section 9-13, Act of March 3, 1899, or to other similar U. S. legislation.

4. The agents of the water power company in question, informally claim to have secured possession of all the land on each bank of the river necessary to allow for construction of the dam and of its accessories, and to protect themselves from all future claims for over-flowage created thereby, so far as any existing known rights are concerned; and they likewise claim that there is no existing State law, or United States law which prohibits their legally going ahead with their proposed construction and that no special law is needed therefor. They admit, however, that in some minor matters, they still lack necessary authority from the local Board of Supervisors, to condemn certain properties which they still wish to acquire in order to facilitate or simplify their future work (such permission, however, not being absolutely essential to such work) and they state that the Board of Supervisors are willing to grant such authority as soon as it is evident that the proposed power dam construction will not interfere with the future development of the river for navigation purposes.

5. The water power company agents likewise state that

their object in bringing the matter up before the War De-
38 partment at present, is to make evident that the pro-
posed dam construction not only does not conflict with any existing U. S. law, but also will assist rather than injure the possible future navigation of the Desplaines and Illinois Rivers, should the improvement of such rivers ever be authorized by Congress in the manner proposed by the last Board Report of August 26, 1905, upon the feasibility and cost of a navigable waterway from Lockport, Ill., to St. Louis, Mo., via the Desplaines, Illinois, and Mississippi Rivers (House Document No. 263, 59th Congress, 1st Session); and they desire to secure from the War Department some expression of opinion, informal or otherwise, so far as it can properly be given, that will allow them to assure all inquiries that the War Department so understands the situation and is making no objection to such prompt progress of the work as is necessary to a business enterprise of its magnitude and importance.

Report of W. H. Bi dated Ma 27, 1906.

6. Paragraph 17 of the Board Report of August 26, 1905, above referred to, specially stated that the plan submitted by the Board was 'not designed to develop water power, but there will probably be no difficulty in modifying it so as to conform to such development if those who are to benefit thereby will co-operate with the Government. They should pay the cost of the dams, and the damage from flowage, which is no more than they would be compelled to do if the Government made no improvement.' The plans herewith submitted by Mr. Munroe show plainly a proposed co-operation such as that described in the above Board Report, offered in such manner as not only to pay the cost of this power dam, and to protect the United States against flowage damage, but also to lessen by one the number of locks and dams necessary for future navigation and to otherwise save both time and money ($142,385 in first cost and $4,000 annually thereafter for maintenance and operation) to the United States, in case Congress should finally decide to undertake the improvement covered by the August 26, 1905, Board Report, or to otherwise make this river navigable in this neighborhood. All informa-
39 tion, so far as received by this office, appears to substantiate the statements of Mr. Munroe, as described above; and I consider that his proposition should be encouraged and that he should receive from the War Department whatever expression of favorable consideration may be proper and allowable under such circumstances.

7. I have carefully considered the question of this power

of H. Bixby, d Mar. 1906.

dam project and have talked it over at intervals with Mr. Woermann, while he was Assistant Engineer in local charge of the Illinois River survey under this office before he had been employed by Mr. Munroe, as well as since that time, and have discussed the matter also with Mr. Munroe; and I believe that the provisos of the next paragraph below are fair and advantageous to both sides, and will leave to the future only the question of regulating pool levels so as to avoid a conflict between depths of water needed for navigation and heads of water needed for power purposes, and so as to divide up the river water between the two according to such rights as may exist when the river shall become a navigable water (which it appears not be at present) and when the United States shall decide to give up the use of the canal and to assume the improvement of the river. Until such time, I do not see how the War Department can assume any definite jurisdiction of the Desplaines River or make any definite demands upon any water-power company already organized for the use of this river. It is my present understanding that these provisos will be accepted by Mr. Munroe.

8. I have therefore to recommend that the Hon. H. M. Snapp and Mr. Charles A. Munroe be informed that the War Department will waive any and all objections which it may have to the progress of such water power dam construction as proposed by Mr. Munroe's letter of March 20, 1906, and its inclosures, provided that he, on the part of the power dam owners, agrees

(a) that he will construct and maintain in good repair, just above the mouth of the Desplaines River, in location as approximately shown on the blue prints, a dam and spillway sufficient to hold the water surface of its upper pool at a height equal to the present mean level of Lake Joliet (taken at 512.0 feet, Memphis datum); and later whenever Congress shall have ordered the improvement of the Desplaines River for navigation purposes, will raise this dam 3.0 feet higher (giving pool level of 515.0 feet, Memphis datum) if the War Department shall so order; and will grant the United States the use of such pool so far as needed for navigation.

(b) that he will assume the cost of, and protect the United States from, claims for all flowage damages caused by this dam between its site and the north line of Section 11, Township 34, Range 9 East, which line is about 1.5 miles by river above the next higher lock and dam proposed by the Board re-

port (i. e., Lock No. 4 and Dam No. 2, at the foot of Treat's Island); Report of W. H. Bi dated Ma 27, 190

(c) that he will grant the United States a strip of land at least 150 feet wide across the north end of this dam, to be so located between it and the tow path of the present Illinois and Michigan Canal, as to connect the present mid river above, to the same below, in the manner approximately indicated on the accompanying blue prints; such strip to be used by the United States for the construction and maintenance of a boat lock, its necessary approaches, and the purposes of navigation;

(d) That he will do all the above, free of cost to the United States;

Provided that the War Department will waive any and all objections which it may have to the progress of such water power dam construction.

Very respectfully,

W. H. Bixby,
Lt. Col., Corps of Engineers.

June 5, 1906.
5 inclosures:
Letter C. A. Munroe, Mar. 20 (520/0/9);
Report J. W. Woermann, Mar. 12 (520/0/8);
Blue prints (520/0/2; 520/0/7; 520/0/10).
(Blue prints in sep. roll.)

41 That there upon the Chief of Engineers of the United States Army concurred in said recommendations and reported the result of his findings and his recommendations to the Secretary of War; and thereupon, and on or about the 7th day of June, 1906, the War Department, by Robert Shaw Oliver, Assistant Secretary of War, sent to said Charles A. Munroe, a letter reading as follows:

War Department. Letter, June 7, 19
Washington, June 7, 1906.

Sir—

In reply to your letter of June 5, 1906, addressed to the War Department, in the matter of the construction by yourself and associates of a dam and spillway across the Desplaines River near its mouth, at the location and as shown on maps, submitted with your letter of March 20th, 1906, addressed to Lieutenant-Colonel W. H. Bixby, Corps of Engineers, U. S. Army, I have the honor to advise you as follows:

It is understood that yourself and associates are willing to comply with the following conditions, viz:

7, 1906. First. That the details of construction shall be such as to insure permanency and of sufficient capacity to hold the water surface of its upper pool at a height equal to the present mean level of Lake Joliet (taken at 512.0 feet Memphis datum); and later whenever Congress shall have ordered the improvement of the Desplaines River for navigation purposes, the dam shall be raised by you and your associates 3.0 feet higher (giving pool level of 515.0 feet, Memphis datum), if the War Department shall so order; the United States and the public to have the free use of such pool so far as needed for navigation purposes, and the use of water for power purposes shall be so limited that the level of the pool shall at no time be reduced below that adopted for navigation in the plans of the United States for the slack-water improvement of the river.

Second. That the United States shall be protected from
42 claims for all flowage damages caused by the dam between its site and the north line of section 11, township 34, range 9 east, which line is about 1.5 miles by river above the next higher lock and dam proposed by the Board of Engineers' report (i. e., Lock No. 4 and Dam No. 2 at the foot of Treat's Island.)

Third. That there shall be conveyed to the United States free of cost a strip of land at least 150 feet wide across the north end of this dam, to be so located, between it and the tow path of the present Illinois and Michigan Canal, as to connext the present mid river above to the same below in the manner approximately indicated on the accompanying blue prints; the right of the United States to enter upon and use such strip of land for the construction and maintenance of a boat lock, its necessary approaches, and for other purposes of navigation, if it so desires, without liability for damages resulting in any way from its operation in connection with construction or maintenance of said lock and appurtenant works to be duly guaranteed.

If these conditions are complied with, in the opinion of the Chief of Engineers, U. S. Army, concurred in by this department, the work proposed is in general harmony with the work of improvement recommended by the Board of Engineers appointed under authority of the River and Harbor Act of June 13, 1902 (32 Stat. L., 331, 364), in its report dated August 26, 1905, printed as House Document No. 263 59th Congress, first session.

Inasmuch, however, as Congress has not as yet authorized the improvement of this river, this department does not deem

it expedient to take further and definite action in the matter of approving the plans. Letter, June 7,

Very respectfully,

ROBERT SHAW OLIVER,
Assistant Secretary of War.

Mr. Charles A. Munroe,
The Rookery, Chicago, Illinois.

43 Defendant avers that afterwards, to-wit, on or about the 15th day of December, 1906, it acquired the interest of said Monroe and his associates in and to the lands hereinabove mentioned, for the purpose of constructing a water power that in February, 1907, Mr. Isham Randolph, Chairman of the Internal Improvement Commission of Illinois, a commission appointed by the Governor of the State of Illinons under an Act of the legislature of that State "to investigate the various problems associated with a projected deep waterway from Lake Michigan to the Gulf of Mexico," made an application to the Secretary of War in relation to the construction of defendant's proposed dam, and a hearing was had thereon before the Secretary of War on the 23rd day of February, 1907; that at such hearing there were present Brigadier-General Alexander Mackenzie, Chief of Engineers, U. S. Army; Mr. Isham Randolph, representing the State of Illinois; Hon. H. M. Snapp, Mr. J. W. Woermann, and Mr. Charles A. Munroe representing the Economy Light and Power Company; and that upon such hearing the following proceedings were had:

Proceedings hearing before Secretary War on Feb. 23,

Secretary Taft: Gentlemen, as I understand this application, it is to prevent me from granting a permit to any person on the Desplaines River to build a dam for water power purposes, on the ground that the State is interested in supervising that matter itself. Is that about the size of it?

Mr. Randolph: Before proceeding I will present you a letter from the Governor of Illinois.

The position of the State, as I understand it, is this. I am appearing in this matter at the present time for the State, because as I understand it the Sanitary District has no interest in the present application whatever. The work of the Sanitary District, however, has made possible the development of very, very important water power on the Desplaines
44 and Illinois Rivers. Prior to the completion of that work the water powers on the Desplaines River were inconsequential. They amounted to but little. The water power on the Illinois River was somewhat better. There was one de-

velopment at Marseilles. But the opening of the Sanitary District naturally has turned into those rivers a permanent volume of water which makes the development of the water powers possible on quite a valuable scale.

The interest of the State in this is to see that this asset is developed to the fullest extent, and that it shall be so developed as not to interfere with the creation of a waterway such as the State hopes to see put through. The Desplaines River rises in Wisconsin and crosses the State line into Illinois about six miles east of the west shore of Lake Michigan. It flows in a southerly and westerly direction for about 86 miles until it unites with the Kankakee River, and the two rivers form the Illinois River.

The resources of the State in coal, as you know, are very large, but they are being tremendously depleted by the constant demand upon them, and it seems to be the part of wisdom on the part of the State and its authorities to conserve all the natural resources which are available within its territory.

Therefore the last legislature authorized the Governor to appoint a board to be known as the Board of Internal Improvement of the State of Illinois, to consider all the questions affecting the development of the resources of the State, particularly its water ways and its water power. The idea of the Governor and this board is that no water power should be developed in such a way as to hinder the development of the waterway, or to militate against the highest development of all the water power that can be created by this new source of power flowing into the State from Lake Michigan; and for that reason the Governor has asked me to attend this meeting and to look out for the interests of the State in the case.

Secretary Taft: Your contention is then, Mr. Randolph, that the present application would not only interfere with your plans for water power, but would also interfere with the navigation of the stream, as that navigation may be anticipated by improvement.

Mr. Randolph: That is not my contention, Mr. Secretary, because I have never had an opportunity of seeing the plans of these applicants.

Mr. Munroe: They are on file in this department.

Mr. Randolph: I have asked for them several times, but have never seen them. They may or they may not be in accordance with a proper development of waterways. If you will remember, the report of the Board of Engineers, who reported upon the deep waterway from Lockport to St. Louis states that they did not, in their consideration take up any

discussion of the water power. I will read from their report a question which covers the grounds. This I quote from page 12 of the report of the 'Board of Officers of the Corps of Engineers, U. S. Army,' upon the 14 foot waterway from Lockport to the mouth of the Illinois River (Document No. 263, 59th Congress, 1st Session) transmitted to you on the 12th day of December, 1905.

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'The plan submitted is not designed to develop water power but there will probably be no difficulty in modifying it so as to conform to such development if those who are to benefit thereby will co-operate with the Government. They should pay the cost of dams and damages from flowage, which is no more than they would be compelled to do if the Government made no improvement.'

I am not saying that the plan proposed is, or is not, an inteference with an adequate waterway, or with the best development of water power, because I never had any chance to study the plan.

The board with which I am connected, has made a study of this whole question, and it finds that it is ossible, under conditions of proper conservation, to develop in the valley at least 173,000 horse power, which you must recognize as an exceedingly valuable asset for the State, if properly de-
46 veloped; and what we ask is that the work should be done systematically so that one work will not militate against the development of the other.

Mr. Snapp: Mr. Secretary, may I say a few words?

Secretary Taft: Yes, sir.

Mr. Snapp: Mr. Secretary, it has been said by Mr. Randolph that he appears here for the State, but I notice in the correspondence that has led up to this hearing that the original proposition proceeds from the Sanitary District of Chicago, and that their letter which has resulted in this pro is of the greatest importance that no vested rights should beceeding, addressed to the Governor of the State, says that, 'It is of the greatest importance that no vested nights should become intrenched in this valley, which would hamper the waterway and the highest interest of the State.'

So that, as a matter of fact, this proceeding, whatever it may be called, was initiated by the Sanitary District of Chicago.

I am interested in this matter in this way. The Sanitary channel terminates at Joliet, my native town. The Desplaines River, where this water power may be developed, lies almost wholly within my county. Like everyone else in that section of the country, I am vitally interested in two propositions:

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First, the construction of the navigable waterway, 14 feet deep, from Chicago to St. Louis, and incidentlly, in connection therewith, the highest possible development of water power incidentally created thereby. To properly consider these questions which have been brought before you, two important matters must be kept in mind: First, the rights of the Government in this case, and necessarily connected therewith, the rights of individuals. In other words, if the general government has no right, either to this property, or to the water power developed thereby, there can properly be no determination of this matter by any of the officers of the Government.

Now, as a matter of fact, all the property interest in the Desplaines Valley belongs to private parties. There is absolutely no public ownership of any land in the Desplaines
47 Valley. The stream is not a navigable stream. In low water the entire flow of the Desplaines river would come probably, through a six-inch pipe. It falls down hill, falling 100 feet in less than thirty miles. Neither the flow of the water nor the contour of the land makes the stream navigable, and it has been so held.

Secretary Taft: You say the Desplaines River is not a navigable stream?

Mr. Snapp: It is not a navigable stream, either in law or in fact. It could not be navigated in low water, in the natural condition of the river, by a birch bark canoe.

Secretary Taft: How do we get any jurisdiction of it, General Mackenzie?

Mr. Snapp: Let me answer, Mr. Secretary, as a lawyer. You have absolutely none, and I was going to bring to the attention of the Secretary.

Secretary Taft: Why do you come here for a permit, then?

Mr. Snapp: Let me explain that. We did not come for any permit. My interest in this, as a citizen, is for the best development of these interests. The people who owned this property at the mouth of the river and sought to develop this power went before the Board of Local Supervisors of our county for certain authority. I being most interested in the development of this waterway, took pains to see to it that they were refused that authority until an assurance could be given me and the Board of Supervisors by their plans—which I sought to have passed upon by the War Department—that the development of power under their plans would not interfere in any way with the development of the waterway. Therefore I compelled them by local pressure to submit the matter to General Mackenzie, not for the purpose of asking for permis-

sion to do this work, but for the purpose of satisfying myself and my people that the work contemplated would not, in the event that Congress authorized the waterway, interfere with it in the least, or make it more expensive to the Govern-
48 ment. Is not that practically what we sought, general?

General Mackenzie: Yes, that is practically. We were a little puzzled. Speaking of the Desplaines river in its natural condition it would not be interfered with, but at that time Congress had caused a survey to be made for a 14-foot channel in the Desplaines river, and that put the river on a little different basis—that is, if the Government sought to carry out the 14-foot plan.

Secretary Taft: As a matter of fact, it is not now navigable?

General Mackenzie: It is not now navigable.

Secretary Taft: And if they sank a 14-foot channel in the river and affected private interests, they would have to buy them, would they not?

General Mackenzie: Yes. As Mr. Snapp says, these plans were brought here to the War Department. They were looked over and compared, and the War Department wrote a letter stating that if they satisfied certain conditions they would be in accord with the plans proposed by the Board of Engineers for the 14-foot project. I have a copy of the letter.

Secretary Taft: That is all they said:

General Mackenzie: That is all, sir. As they say, there is no application for this before the Department. No application has ever been made, and as Mr. Snapp said, it was simply that we went over the plans, and at their request this letter was written, to show that if these plans did satisfy certain conditions they would be in accordance with the report of that board, and the plan presented by that board.

Secretary Taft: But you are not seeking to exercise any authority over an existing navigable stream?

General Mackenzie: No, sir.

Secretary Taft: Or to grant a permit so as to protect the interests of the United States in the stream?

General Mackenzie: No, sir.

Secretary Taft: Suppose they were to go ahead with-
49 out coming here at all; you could not go into court, or could not by an order of this department, prevent them from doing anything, could you?

General Mackenzie: I do not think we could. Of course, under all the conditions, so far as they have gone, possibly we would call the attention of the Department of Justice to

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the matter, simply to have them consider it as a legal proposition.

Secretary Taft. Where would the Department of Justice get any power?

General Mackenzie: Only from the general law, that in case of any violation of any law for the protection of navigable streams—

Secretary Taft: Yes, but the Desplaines river is not a navigable stream, is it?

General Mackenzie: It is not to-day, sir.

Secretary Taft: And it could not become so except by a declaration of Congress, and actual work done on it?

General Mackenzie: That is it, exactly.

Secretary Taft: Then where do I get any power to deal with it at all?

General Mackenzie: I do not know that there is any, Mr. Secretary.

Secretary Taft: Mr. Randolph, where do you find I get any power?

Mr. Randolph: Mr. Secretary, the Desplaines river was meandered by the United States Government as far as Romeo—

Secretary Taft: Was what?

Mr. Randolph: Was meandered.

Secretary Taft: That was for a survey, was it not? By "meandered" you mean "surveyed"?

Mr. Randolph: I mean surveyed, and the metes and bounds of the stream were established.

Secretary Taft: They did not fix any harbor lines, did they, on that stream?

General Mackenzie: No, sir.

Mr. Randolph: Of course I am stating this not as of my own knowledge, because I have no personal knowledge of it. That fact, and the fact that the stream was not conveyed along with other lands, still leaves the bed of the stream vested in the United States. That is something for the lawyers, however, and not for me.

Secretary Taft: Would we own the bed of the stream?

General Mackenzie: No, sir, the state would have it.

Secretary Taft: I think so.

Mr. Snapp. If you will pardon me, Mr. Secretary, neither of you is right. It is what is called a meandered stream, for the purpose of survey only, and of ascertaining the quantity of the lands with their improvements in a section or a quarter section. It has been decided time and again by the Supreme

Court of Illinois and by the United States Supreme Court, that on meandered streams the owner of the property takes to the thread of the stream. It has been decided, Mr. Randolph, time and again, in suits in which you have been a witness in the Sanitary District, and for which you have contended that that is the law of the land.

Mr. Randolph: Not that I contended, for I don't know anything about the law.

Mr. Snapp: The Sanitary District so contended, and they had judgment after judgment entered in our courts, which were sustained by the Supreme Court of the United States. That has always been the law. This property belongs to private owners. There is absolutely no public ownership or interest in it. I say this, because I was for quite a while an attorney for the Sanitary District of Chicago, and attorney for the State of Illinois against the Sanitary District, in matters involving all these questions, and I know that what I say is true, that it is the established law of Illinois, sustained by the Supreme Court of the United States, that on meandered streams, navigable, or unnavigable, the abutting property owner takes to the thread of the stream.

Mr. Randolph: Is it not a fact that as attorney for the Illinois and Michigan Canal you contended that they owned the stream up to a certain point above the E. J. & E. Bridge?

Mr. Snapp: No, I contended in one case, because of
51 their riparian ownership of the bank of the canal, they did own a certain portion to the middle of the stream, but as the riparian owner only.

Secretary Taft: Do you represent the State of Illinois alone, or is there anyone else who has an interest?

Mr. Randolph: The Sanitary District has no interest in the present contention, that I can see. It is beyond the reach of any improvements which they propose to make.

Secretary Taft: I am about ready to dispose of this matter.

Mr. Snapp: Will you let me add one word further, Mr. Secretary?

Secretary Taft: Certainly.

Mr. Snapp: As I have said, my interest was to have an assurance that what they undertook to do here in the construction of water power would not interfere with the proper construction of the waterway. Plans were made and submitted to General Mackenzie, not for the purpose securing any permit, but as I said at the time, for the purpose of my personal information, that I might know, as the representa-

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tive of that District urging this waterway that they were not to do something that would jeopardize or embarass that. That was all that was sought by me, and that was all that was undertaken by the War Department. It resulted in plans being submitted and an opinion expressed that if the construction were pursued on the lines indicated by the plan it would not in any way embarrass the construction of the proposed waterway along the same line. That is all we sought, and that is all we obtained. That is all anybody wants.

General Mackenzie: In confirmation of that, in a letter dated June 7, 1906, addressed to Mr. Munroe at that time, after reciting certain conditions that must be satisfied by the plant, it is stated:

"If these conditions are complied with, in the opinion of the Chief of Engineers, U. S. Army, concurred in by this Department, the work proposed is in general harmony with the work of improvement recommended by the Board of Engineers
52 appointed under authority of the River and Harbor Act of June 13, 1902, in its report dated August 26th, 1905, printed as House Document No. 263, 59th Congress, 1st Session.

"Inasmuch, however, as Congress has not as yet authorized the improvement of this river, this Department does not deem it expedient to take further and definite action in the matter of approving the plans."

Decision of the Secretary of War.

Secretary Taft: There are two answers to the contention of the State of Illinois in this matter. The application, if I understand it—and it is rather informal than otherwise—is for this Department to take no official action which may interfere with the state control of the water power, which may be developed in the Desplaines river under a proposed improvement by the construction of a 14-foot waterway; and also to take no action which may interfere with the waterway as a waterway.

There are two answers to that. The Department is not going to take any action, and has not taken any action of any sort. The advisory step, taken at the instance of Mr. Snapp or the persons who intended to put some sort of water power construction in the Desplaines river, was extra-official, and really was beyond the authority of the Chief Engineer, except as he was accommodating and was ready to express an opinion, in the interest of explanation.

The truth is that the Desplaines river not being a navigable stream, no permit was necessary to put any obstruction into

it which the War Department could prevent. But even if it had been a navigable stream, and even if the application had been made, and properly made to this Department to say whether this would interfere with navigation, if the Department concluded that it would not interfere with navigation then it is not within the power of the Department to withhold its expressing such an opinion and granting such a permit, so far as the United States is concerned, for the purpose of aiding the state in controlling the water power. If the
53 state has any control over the water power, which it may exercise, in conflict with the claimed rights of the riparian owner, then it must exercise it itself, through its own legislation and through its own executive officers.

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All the United States does, assuming it to be a navigable stream, is merely to protect the navigation of the stream. With reference to the water power it has no function except in respect to water power which it itself creates by its own investment, in property that it itself owns; and then of course it may say how that water power shall be used. But with respect to the water power on a navigable stream, which may be exercised without interference with the use of the river for navigation purposes, that is controlled by the laws of the state. It is controlled by the riparian ownership and by the common law, as it governs those rights. Therefore, I do not see, with reference to this matter, that this Department has any function whatever to perform, or which it can perform. It has merely offered a friendly suggestion that with reference to a possible improvement of the river, which has not been authorized, and which until it is authorized cannot be regarded, as giving any right to this Government to interfere in the use of the stream, the proposed action by the private owners here would not be in conflict with such a plan. That is an expression of an opinion with reference to existing plans, and not with respect to existing conditions.

Therefore, what General Mackenzie has done out of the kindness of his heart does not commit this Department to any assertion of authority in the matter, and certainly does not carry us to the necessity of retracing our steps and saying that they shall not go on with this, when we had not any power to interfere at all.

It is not that we approve this; it is not that we disapprove it. It is that we have nothing whatever to do with it. That is the truth of it.

If the state wishes to control the matter of the water power, then it is for the legislature, through which it can ex-

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press that view, in so far as it may constitutionally affect it by legislation.

54 General Mackenzie: That is virtually what was told the Governor, Mr. Secretary, and this is the result of one of our endorsements.

Secretary Taft: All right, I think that disposes of it."

That thereafter, and relying upon the attitude of the United States through the course of a hundred years, and the reports of its engineers, and relying upon the correspondence passing between the War Department and the said Charles A. Munroe, and upon the decision of the Secretary of War upon the application of said Isham Randolph, this defendant began the actual construction of its dam, which is sought to be restrained in this case, and has expended large sums in and about the same and has incurred liabilities for other large sums, and defendant avers that the present action of the United States as to the navigability of said stream is inequitable and unjust and that it ought not now to be permitted to harass and annoy this defendant by claiming a public highway therein.

Defendant further avers that on December 30, 1907, the Attorney General of Illinois filed an information in the nature of a bill in equity against this defendant in the Circuit Court of Grundy County, Illinois, and obtained a preliminary injunction restraining defendant from proceeding further with the work. That said bill claimed, among other things, (1) that the title to the bed of the Desplaines river at the site of the dam was in the State of Illinois and (2) that the river was a navigable stream; that after a full hearing, the trial court on June 27, 1908, found the issues for the defendant and entered a decree dismissing the bill for want of equity. An appeal was taken to the Supreme Court of Illinois, and that Court on October 26, 1909, affirmed the decree and held that the title to the land on which defendant's dam was being constructed was in the

55 defendant, and that the said Desplaines river was not a navigable stream in law or in fact. And this defendant avers that said action, in so far as it involved the character of the Desplaines River, and the title of this defendant to the land and river bed within the meander line of said Desplaines river was a proceeding in rem., and that the decree of the Circuit Court of Grundy County, affirmed by the Supreme Court of the State of Illinois, in so far as it passed upon the question of the character of the Desplaines river and de-

fendant's title to said land, is a judgment in rem., and is binding upon the world, so long as it remains unreversed. Answer, Feb. 28,

Complainant admits the adoption by the Legislature of the State of Illinois of the Act of May 29, 1889, entitled, "An Act to create sanitary districts and to remove obstructions in the Desplaines and Illinois Rivers," and for the provisions of said Act refers to Laws of Illinois of 1889, pages 126, et seq., where said Act in full and at length appears.

But defendant avers that the purpose of said Act, and it has been so held by the Supreme Court of the State of Illinois, was drainage and sanitation and not the creation of a navigable channel. Defendant admits that pursuant to the provisions of the Act of May 29, 1889, the Sanitary District of Chicago constructed a channel connecting the Chicago River with the said Desplaines River; admits that upon the completion of such Sanitary District Channel, and prior to the commencement of the construction by this defendant of its said dam in the Desplaines River, to-wit, in the year 1900, said Sanitary District of Chicago, pursuant to said Act, did divert through its said channel from Lake Michigan into said Desplaines River, water to the amount of about 300,000 cubic
56 feet per minute; and that continually since the opening of said Sanitary District Channel, there has been diverted from Lake Michigan through said channel into said Desplaines River, at a point above that at which this defendant has commenced the construction of its said dam, a quantity of water amounting to about 300,000 cubic feet per minute; admits that said Sanitary District Channel is and has been since the opening of said channel in 1900 navigable water, but denies that said Sanitary District Channel is navigable waters of the United States or that it is subject to the jurisdiction and control of the Federal Government.

Defendant avers that it was provided in and by said act that whenever the General Government, after the water should have been turned into said Sanitary District Channel should improve the Desplaines and Illinois Rivers for navigation to connect with said Sanitary District Channel, the general government should have full control over the Sanitary District Channel for navigation purposes, but not to interfere with its control for sanitary or drainage purposes; but defendant avers that the general government has not improved the Desplaines and Illinois Rivers for navigation, or otherwise, and has no control over said Sanitary District Channel for navigation purposes, or otherwise.

Defendant avers that the sole and only purpose of the or-

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ganization of said Sanitary District and the construction of said Sanitary District Channel was drainage and sanitation and not navigation, and that although a navigable channel was constructed, navigation was in no sense the purpose, or one of the purposes, of the organization of such District, and the construction of said channel, and whenever the use of said channel for navigation should interfere with its use for drainage and sanitation, navigation must give way to the extent that it interferes with drainage and sanitation.

57 And defendant avers that said Sanitary District Channel was constructed by taxes levied upon the inhabitants of said Sanitary District, and that said Sanitary District Trustees hold said channel in trust for drainage and sanitary purposes, and that neither said Sanitary Trustees nor the State of Illinois nor the complainant in this case has authority to divert said channel from such use.

Defendant admits that in connection with the construction of said Sanitary District Channel said State of Illinois has caused the quantity of water flowing through said Desplaines River, below the point at which it connects with said channel, to be largely increased; but denies that said portion of said river has been continuously, or at any time, since the opening of said channel, or now is, water navigable in fact, or a part of the navigable waters of the United States, or subject to the jurisdiction or control of the Federal Government; denies that since the quantity of water flowing through said portion of said Desplaines River has been thus artificially increased, the only substantial obstructions to the navigability of said river are certain rapids between the portion of said river known as the Upper Basin, that is, the portion of said river in which it follows the channel of the Illinois and Michigan Canal, and the portion of said river known as Lake Joliet, and certain other rapids at Treat's Island and Dresden Heights in said river. And denies that, with the exception of the difficulties arising on account of said rapids, said river has been since the opening of said Sanitary District Channel, or now is, capable of being navigated for purposes of commerce. It admits that the difficulties arising on account of such rapids are capable of being overcome through the improvement of said river by locks, canals and dams; but defendant avers that such difficulties can only be so overcome, by the con-

58 struction of such locks, canals and dams as would entirely change the character of said river and create a navigable stream where one does not now exist, and defendant avers that the construction of said Sanitary District Channel, and the

turning into said Desplaines River has not and cannot destroy the rights of this defendant, and its predecessors in title as riparian owners along said stream. Answer, Feb. 24,

Defendant denies that in connection with, and as a result of, the construction of said Sanitary District Channel and the diversion of said water from Lake Michigan, the said Sanitary District of Chicago has largely increased the navigability of the said Desplaines River, or that continuously since the opening of said canal there has been, or now is, in said portion of said Desplaines River, below the point at which it connects with said canal, a body of water navigable in fact, or which, by virtue of its connection with other navigable waters, is to be deemed a part of the navigable waters of the United States, or subject to the jurisdiction and control of said United States; and denies that the control over said body of water exists in the United States in the exercise of its power to regulate commerce; and defendant avers that down to the time of said diversion of said water from Lake Michigan into said Desplaines River, no right or power of control ever existed in the United States over the said Desplaines River, or the waters thereof; and denies that by reason of said diversion of water from Lake Michigan into said Desplaines River, or on any other account, the said United States ever acquired any right or power of control therein.

Defendant admits that by Section 9 of the River and Harbor Appropriation of March 3, 1899, Chapter 425, it is provided that it shall not be lawful to construct or commence

the construction of any bridge, dam, dyke, or causeway
59 over or in any port, roadstead, haven, harbor, canal, navigable river or other navigable waters of the United

States until the consent of Congress to the building of such structures shall have been obtained, and until the plans for the same shall have been submitted to and approved by the Chief of Engineers and by the Secretary of War and that such structures may be built under the authority of the legislature of a state across rivers and other waterways the navigable portions of which lie wholly within the limits of a single state, provided the location and plans thereof are submitted to and approved by the Chief of Engineers and by the Secretary of War before construction is commenced. But defendant avers that said Desplaines River is not a port, roadstead, haven, harbor, canal, navigable river, or other navigable water of the United States, and defendant alleges on information and belief that many bridges and dams have been built, con-

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structed and maintained over, in and across the said Desplaines River since the passage of said act, without the consent of Congress to the building of such structures, and without the submission of plans to, or the approval of the same by, the Chief of Engineers or the Secretary of War, and without authority of the Legislature of the State of Illinois. Defendant avers that the purpose of said act was to protect existing commerce, and that there is no commerce on said Desplaines River to protect, and that said act does not apply to said stream.

Defendant admits that in the year 1907, it commenced the construction of its said dam in said Desplaines River, and has already constructed a portion thereof, and that it has never obtained the consent of Congress to the building of said dam, and that the location and plans for construction of said dam, have not been approved by the Chief of Engineers or by the Secretary of War, except as hereinabove stated; but it denies that the same were required by said Act; admits that it
60 asserts and maintains that said Desplaines River is not a navigable river or a navigable water of the United States, and that the authority and permission provided by said Act of March 3, 1899, is not required for the construction of said dam; admits that it has refused, and still refuses, to remove the portion of said dam already constructed, and admits that it will complete the construction of said dam unless prevented by injunction of this court. Denies that the portion of said dam already constructed is a structure erected in violation of the provisions of said Act of March 3, 1899, or that if the construction of said dam is completed by said defendant, said structure will be a permanent, or any, obstruction in said river, or that it will irreparably injure and damage, or injure and damage to any extent, the rights and property of the United States.

Defendant denies that an adequate remedy in the premises can only be obtained in a court of equity, but avers that if the United States have any property rights in the lands and river bed within said meandor lines, such rights may be enforced as promptly, effectively and completely in a court of law as in a court of equity.

Defendant denies that any of the allegations of said bill not herein well and sufficiently answered unto, traversed and avoided or denied are true.

Defendant denies that the complainant is entitled to the relief prayed for in said bill, or to any part thereof, and de-

fendant prays the same advantage of this answer as if it had pleaded or demurred to said bill of complaint, and it prays to be hence dismissed with its reasonable costs in this behalf, most wrongfully sustained. Answer, Feb. 28,

ECONOMY LIGHT & POWER COMPANY,
By SCOTT, BANCROFT and STEPHENS,
Its Solicitors.

ISHAM, LINCOLN & BEALE,
SCOTT, BANCROFT & STEPHENS,
Solicitors for said Defendant.

(Endorsed) Filed Feb., 28, 1910, H. S. Stoddard, Clerk.

61 And afterwards to-wit: on the eleventh day of April, 1910, came the complainant in said entitled cause by the United States Attorney for the Northern District of Illinois and filed in the Clerk's office of said Court its certain Replication, in words and figures following to-wit: Replicati filed A 1910.

62 IN THE CIRCUIT COURT OF THE UNITED STATES OF AMERICA

For the Northern District of Illinois,

Eastern Division.

United States of America
v.
Economy Light and Power Company. } No. 29776.

The replication of the United States of America complainant herein, to the answer of the Economy Light and Power Company, defendant herein.

This repliant, saving and reserving to itself now and at all times hereafter all and all manner of advantage of exception which may be had and taken to the manifold insufficiencies of the said answer, for replication thereunto says that it will aver, maintain, and prove its bill of complaint to be true, certain, and sufficient in law to be answered unto, and that the said answer of the said defendant is uncertain, untrue, and insufficient to be replied unto by this repliant, without this: that any other matter or thing whatsoever in the said answer contained, material or effectual in the law to be replied unto, and not herein and hereby well and sufficiently

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replied unto, confessed and avoided, traversed or denied, is true, all which matters and things this repliant is and will be ready to aver, maintain, and prove, as this honorable court shall direct, and humbly prays, as in and by its said bill it has already prayed.

EDWIN W. SIMS,
United States Attorney, Solicitor for Complainant.

(Endorsed) Filed Apr. 11, 1910. H. S. Stoddard, Clerk.

of 25, 1917.

63 And on to-wit: the twenty-fifth day of May, 1917, in the record of proceedings in said entitled cause, before the Hon. Kenesaw M. Landis, District Judge, appears the following entry to-wit:

United States of America,
vs.
Economy Light and Power Company. } 29776.

Now comes the defendant and moves the Court for leave to amend its answer to the bill of complaint herein to conform to the evidence and to the arguments heretofore made upon the hearing of said cause, in accordance with draft of such proposed amendment now submitted to the Court, and said motion is hereby granted, and said defendant is given leave to file said amendment instanter, which is done, and it is further ordered that the replication of the complainant heretofore filed herein stand as and for its replication to said answer as amended.

KENESAW M. LANDIS,
Judge.

64 And on to-wit: the twenty-fifth day of May, 1917, came the defendant in said entitled cause by its solicitors, and by leave of court, first had and obtained, filed in the clerk's office of said court its certain Amendment to Answer, in words and figures following to-wit.

65 AMENDMENT TO ANSWER.

Amendment to answer filed [illegible] 1917.

In the District Court of the United States

For the Eastern Division of the

Northern District of Illinois.

United States of America
—*vs*—
Economy Light and Power Company } In Chancery. No. 29776.

Now comes the defendant, the Economy Light and Power Company, by its socilitors and moves the Court for leave to amend its answer to the bill of complaint herein to conform to the evidence and to the arguments heretofore made upon the hearing of said cause as follows:

By inserting, after the sentence, "Defendant avers that the purpose of said Act was to protect existing commerce and that there is no commerce on said Desplaines river to protect and that said Act does not apply to said stream," the following:

"And the defendant says that the Desplaines River is not in fact, capable of navigation for purposes of useful commerce, and that neither Section 8, Article 1 of the Constitution of the United States, nor the Act of Congress of March 3, 1899, or any other Act of Congress, is applicable to such stream.

And further defendant says that there is not, and has not been within the memory of mankind, any commerce upon said Desplaines River, and that the Congress of the United States has no power under the Constitution, to control or regulate the use of said river.

66 And defendant further answering says that if said Act of Congress of March 3, 1899, or any of the Acts of Congress mentioned in said bill of complaint or relied upon by the complainant should be held to establish the character of said Desplaines River as navigable, then said Acts, and each of them, are, and is, unconstitutional, notwithstanding the Ordinance of 1878, or any of the Acts of Congress for the government of the territories.

This defendant further answering denies that the Act of March 3, 1899, or any other Act of Congress, applies to said Desplaines River, and also further insists that if any of said Acts are held to apply to said river, the same are null and void

dment answer, May 25, 7.

under the provision of the Fifth Amendment to the Constitution of the United States, forbidding the taking of property without due process of law and the taking of private property for public use without just compensation."

SCOTT, BANCROFT, MARTIN & STEPHENS,
ISHAM, LINCOLN & BEALE,
Solicitors for Defendant.

(Endorsed) Filed May 25, 1917, T. C. MacMillan, Clerk.

of 25, 1917.

67 And on the same day to-wit: the twenty-fifth day of May, 1917, in the record of proceedings in said entitled cause before the Hon. Kenesaw M. Landis, District Judge, appears the following entry to-wit:

United States of America,
vs.
Economy Light and Power Company. } 29776.

Upon motion, it is ordered by the court that leave be and the same is hereby granted the respective parties hereto, to fil their abstract of proofs and books of maps as of December 4, 1912.

randum pinion, Nov. 7,

68 And on to-wit: the seventh day of November, 1916, there was filed in the clerk's office of said court in said entitled cause a certain Memorandum of Opinion in words and figures following to-wit:

MEMO. FOR OPINION.

United States
vs.
Economy Light & Power Company }

Bill to enjoin defendant from constructing dam across Desplaines River brought under statute authorizing Attorney-General to so proceed when navigable water of U. S. is obstructed without permit of War Department. Question: "Is river navigable stream within meaning of statute"? Navigable waters of U. S. defined by Supreme Court in Montello case, 87-439. ****

Test is whether river was used or was susceptible of being

used in its ordinary condition as highway of commerce for trade and travel in customary mode and of trade and travel by water. Inquiry is as to the time when actual navigability is averred, that is to say, when it is claimed stream was actually navigated or was actually susceptible of such use by the customary modes of trade or travel at that time. This results from early acts of Congress after adoption of constitution perpetually dedicating as highways of commerce rivers, etc., then impressed with that character.

Memora... of op... filed ... 1916.

U. S. claims (among other uses) actual navigation from early fur trading days down to end of first quarter of last century. Proof of actual specific use by customary mode of trade and travel by water, that is, by kind of craft then used for that purpose on rivers of U. S. throughout this period appears. Controversy has really been as to extent rather than to the fact of such use. This evidence taken with existence of portage from Chicago River to Desplaines during time mentioned a large collection of historical documents, contemporaneous maps and governmental records and reports forbids conclusion river was not subjected to such use for trade and travel down to and subsequent to enactments of original (?) legislation referred to. From this, follows river shown by evidence to be navigable water of U. S. when bill filed and at present time.

No evidence of actual navigation within the memory of living man, therefore no present interference with navigation by placing obstruction in stream. Query: Does act authorize injunction? Question would be serious in absence of actual present injury were it not that legislation enacted at time of general public interest in internal navigation development and improvement and government activity looking to that end. Act considered with its predecessor exhibits intention of Congress to then assume and exercise control over
69 whole subject matter and specifically to prevent thenceforward the placing of further obstructions in navigable waterways unless permitted so to do under the terms and conditions prescribed by governmental department given authority and charged with responsibility of its exercise.

Judgment of State Supreme Court against navigability in Illinois vs. present defendant obviously rendered on record vitally differing in the facts from record here as to actual use of stream for trade and travel by customary mode at time of use. Therefore, that judgment not persuasive, it appearing from court's opinion to have been based on the absence of evi-

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ndum
nion,
Nov. 7.

dence from that record as to such use which evidence is present here.

Claims of government that injunction should issue because of riparian ownership theory untenable—absence of proof of ownership. Also claim of right to injunction because river is now actually navigable within meaning of Montello doctrine untenable, because present volume of water due to artificial cause.

Delay in deciding this cause not source of pride to this court. Due to several things, but in the main responsibility is in the court.

Order finding Desplaines River navigable water of U. S. within meaning of Act of Congress, that Attorney General authorized to bring bill; that construction of dam would be obstruction of such navigable stream without permit of War Dept., and that injunction issue as prayed.

(Endorsed) Filed Nov. 7, 1916, T. C. MacMillan, Clerk.

, 1917.

70 And on to-wit: the twenty-fifth day of May, 1917, in the record of proceedings in said entitled cause, before the Hon. Kenesaw M. Landis, District Judge, appears the following entry to-wit:

71 IN THE DISTRICT COURT OF THE UNITED STATES

For the Northern District of Illinois,

Eastern Division.

United States of America
v.
Economy Light and Power Company
} In Chancery, No. 29776.

Argument having been heard upon the demurrers to the Bill of Complaint herein, it is

Ordered that said demurrers and each of them be, and they are hereby, overruled, to which ruling defendant excepts, and thereupon the cause came on to be heard and was argued by counsel, and thereupon, upon consideration thereof, it was

Ordered, Adjudged and Decreed as follows:

That the equities are with the complainant; that said structure described in said bill of complaint as being constructed by said defendant in said river is a structure erected in viola-

tion of the provisions of Section 9 of the Act of March 3, 1899, and that the defendant, its officers, agents, representatives and grantees and assigns and all persons acting for it, or under its authority, or under authority of any grant or conveyance from it, are perpetually enjoined from placing any further obstruction in that portion of the Des Plaines River, where said dam was being constructed by said defendant as set forth in said bill, and from doing any other work in connection with the erection or construction of said dam mentioned in said bill of complaint, and that said defendant is Decree of May

hereby ordered to remove the portion of said dam which
72 has been constructed by said defendant as described in said bill, within six months from this date, or within such further time as the Court may specifically order for that purpose. And it is further

Ordered and Decreed that defendants pay the costs of this suit to be taxed by the Clerk, and that execution issue therefor. To the which findings and decree and to every part thereof, the defendants excepts.

KENESAW M. LANDIS.

Dated this 25 day of May, A. D. 1917.

73 And on to-wit: the third day of July, 1917, in the record of proceedings in said entitled cause, before the Hon. Kenesaw M. Landis, District Judge, appears the following entry to-wit: Order of July

United States of America,
vs.
Economy Light & Power Co. } 29776.

On motion of defendants, it is ordered that the matters introduced in evidence upon the hearing of this case, and not appearing in the printed proofs, and defendant's Exhibits one, two, three and four, received in evidence on the twentieth day of December, 1915, be filed nunc pro tunc as of December 20, 1915.

74 And on to-wit: the fourteenth day of July, 1917, came the defendant in said entitled cause by its solicitors and filed in the clerk's office of said court, its certain Petition for Appeal and Assignment of Errors in words and figures following to-wit:

for
l, filed
14, 1917.

75 PETITION FOR APPEAL.

United States of America
Northern District of Illinois
Eastern Division

IN THE DISTRICT COURT OF THE UNITED STATES

For the Eastern Division of the

Northern District of Illinois.

United States of America
—*vs*—
Economy Light & Power. Co.

The above named defendant, Economy Light & Power Company, conceiving itself aggrieved by the order and decree made and entered in the above entitled cause on the 25th day of May, 1917, does hereby appeal from said order and decree to the United States Circuit Court of Appeals for the Seventh Circuit, for the reasons specified in the Assignment of Errors filed herein, and prays that this appeal may be allowed and that a transcript of the record, papers and proceedings upon which said order and decree were made (excepting the volume of maps) duly authenticated, and the original of the volume of maps, may be sent to the United States Circuit Court of Appeals, for the Seventh Circuit.

SCOTT, BANCROFT, MARTIN & STEPHENS,
Solicitors for defendant, Economy Light & Power Company.

(Endorsed) Filed July 14, 1917, T. C. MacMillan, Clerk.

76 ASSIGNMENT OF ERRORS.

Assignment of errors, July 14,

United States of America,
Northern District of Illinois, } ss.
Eastern Division.

IN THE DISTRICT COURT OF THE UNITED STATES

For the Eastern Division of the

Northern District of Illinois.

United States of America,
—*vs*—
Economy Light & Power Company. } In Chancery No. 29,776.

The Economy Light and Power Company, defendant in the above entitled cause, says that in the record and proceedings therein, and in the order or decree entered therein on the 25th day of May, 1917, manifest error has occurred to the prejudice of said defendant, and it assigns for error the following:

1. That the said District Court erred in said decree in overruling each and every of the grounds of demurrer set forth in defendant's answer to the bill of complaint herein.

2. That the said court erred in said decree in finding that the equities are with the complainant.

3. That the said court erred in said decree in holding that the structure described in said bill of complaint as being constructed by said defendant in said Des Plaines River is a
77 structure erected in violations of the provisions of Section 9 of the Act of March 3, 1899.

4. That the said court erred in said decree in enjoining the defendant, its officers, agents, representatives, grantees and assigns, and all persons acting for it or under its authority, or under authority of any grant or conveyance from it, from placing any further obstruction in that portion of the Des Plaines River where said dam was being constructed by said defendant, as set forth in said bill, and from doing any other work in connection with the erection or construction of said dam mentioned in said bill of complaint.

5. That the said court erred in said decree in ordering the said defendant to remove the portion of said dam which has been constructed by it, as described in said bill.

ment of
, filed
14, 1917.

6. That the said court erred in said decree in ordering that the costs of said suit be taxed against the defendant.

7. That the said court erred in not finding for the defendant upon the ground that the Des Plaines River is not, in fact, capable of navigation for purposes of useful commerce, and that neither Section 8, Article I, of the Constitution of the United States, nor the Act of Congress of March 3, 1899, or any other Act of Congress, is applicable to said stream.

8. That the said court erred in not finding for the defendant upon the ground that there is not, and has not been, within the memory of mankind, any commerce upon the Des Plaines River, and that the Congress of the United States has no power under the Constitution to control or regulate the use of said river.

78 9. That the said court erred in not finding for the defendant upon the ground that if said Act of Congress of March 3, 1899, or any other of the Acts of Congress mentioned in said bill of complaint, or relied upon by the complainant, should be held to establish the character of said Des Plaines River as navigable, then said Acts, and each of them, are and is unconstitutional, notwithstanding the Ordinance of 1787, or any of the Acts of Congress for the government for the Northwest Territory.

10. That the said court erred in not finding for defendant upon the ground that if the Act of March 3, 1899, or any other Act of Congress mentioned in said bill of complaint, or relied upon by complainant, applies to the Des Plaines River, said Acts are null and void under the provisions of the Fifth Amendment to the Constitution of the United States, forbidding the taking of property without due process of law and the taking of private property for public uses without just compensation.

11. That said court erred in not finding for the defendant upon the ground that the Des Plaines River is not now a navigable stream.

12. That said court erred in not finding for the defendant upon the ground that the Des Plaines River was not a navigable stream in a state of nature.

79 13. That said court erred in not finding for the defendant upon the ground that the United States is estopped from now claiming or contending that the Des Plaines River is a navigable stream.

14. That the said court erred in not finding for the defendant upon the ground that the judgment and decision of the Circuit Court of Grundy County, Illinois, and of the Su-

preme Court of Illinois affirming said judgment, entered in the case of People of the State of Illinois against the Economy Light and Power Company, was a judgment in rem establishing the character of the Des Plaines River as a nonnavigable stream in a state of nature.

Assignment of errors, July 14,

15. That the said court erred in not finding for the defendant upon the ground that the judgment and decision of the Circuit Court of Grundy County, Illinois, and of the Supreme Court of Illinois affirming said judgment, entered in the case of People of the State of Illinois against the Economy Light and Power Company, was a judgment in rem establishing the character of the said Des Plaines River as a nonnavigable stream, notwithstanding the additional flow of water turned into said stream from the Sanitary District Channel.

16. That said court erred in not finding for the defendant upon the ground that the said Des Plaines River is not navigable water of the United States.

And by reason of such errors, defendant prays that said order and decree of May 25, 1917, be reversed and re-
80 manded with directions to said District Court to enter a decree in favor of defendant.

SCOTT, BANCROFT, MARTIN & STEPHENS,
Solicitors for said defendant, Economy Light & Power Company.

(Endorsed) Filed July 14, 1917, T. C. MacMillan, Clerk.

81 And on the same day to-wit: the fourteenth day of July, 1917, in the record of proceedings in said entitled cause, before the Hon. Kenesaw M. Landis, District Judge, appears the following entry to-wit:

82 And on to-wit: the fourteenth day of July, 1917, in the record of proceedings in said entitled cause before the Hon. Kenesaw M. Landis, District Judge, appears the following entry to-wit:

of
14, 1917.

United States of America,
vs.
Economy Light & Power Co. } 29776.

On motion of Scott, Bancroft, Martin & Stephens, solicitors and counsel for defendant, Economy Light & Power Company,

It is ordered that an appeal to the United States Circuit Court of Appeals, for the Seventh Circuit, from the order and decree heretofore filed and entered herein on, to-wit, the 25th day of May, 1917, be, and the same hereby is, allowed upon the giving of a bond in the sum of $1,000.00 within twenty days to be approved by clerk District Court conditioned according to law, and that a transcript of the record, testimony, exhibits, stipulations and all proceedings herein (excepting the book of maps) and the original of said book of maps, be forthwith transmitted to the United States Circuit Court of Appeals for the Seventh Circuit.

It is further ordered that the bond herein above provided for shall act as a supersedeas bond, and also as a bond for costs and damages on appeal.

Dated this 14 day of July, 1917.

KENESAW M. LANDIS,
Judge.

83 And on to-wit: the twentieth day of July, 1917, there was filed in the clerk's office of said court, a certain Bond on Appeal in words and figures following to-wit:

84 BOND ON APPEAL.

Bond on appeal, July 20,

United States of America
Northern District of Illinois } ss.
Eastern Division

IN THE DISTRICT COURT OF THE UNITED STATES

For the Eastern Division of the

Northern District of Illinois.

United States of America,
vs.
Economy Light and Power Company. } In Chancery. No. 29,776.

Bond on Appeal.

Know All Men By These Presents: That Economy Light and Power Company, a corporation, as Principal and National Surety Company as Surety, are held and firmly bound unto the United States of America in the full and just sum of One Thousand Dollars, to be paid to the said United States of America, to which payment well and truly to be made we bind ourselves, our executors, administrators and successors, jointly and severally, firmly by these presents.

Sealed with our seals and dated this 16th day of July, in the year of our Lord, One Thousand Nine Hundred and Seventeen.

Whereas, lately at a session of the District Court of the United States, for the Eastern Division of the Northern District of Illinois, in a suit pending in said court between the United States of America, complainant, and Economy Light and Power Company, defendant, a decree was entered on, to-
85 wit, the 25th day of May, 1917, in favor of the complainant and against the defendant, Economy Light and Power Company; and,

Whereas, the defendant has obtained from said court an order allowing an appeal to the United States Circuit Court of Appeals for the Seventh Circuit to reverse said decree, and a citation directed to the said United States of America is about to be issued, citing and admonishing the said United States of America to be and appear at the United States Circuit Court of Appeals for the Seventh Circuit, to be holden at Chicago, Illinois;

on
al, filed
20, 1917.

Now, Therefore, The Condition Of The Above Obligation is such that if the said defendant, Economy Light and Power Company shall prosecute its said appeal to effect and shall answer all damages and costs that may be awarded against it, if it fail to make its plea good, then the above obligation is to be void; otherwise, to remain in full force.

ECONOMY LIGHT AND POWER COMPANY,
By CHARLES A. MUNROE
Its President.

(Corporate Seal)
Attest:
JOHN H. GULICK,
Secretary.

NATIONAL SURETY COMPANY
By CHAS. H. BURRAS
Its Resident Vice-President.
(Corporate Seal)
ANTON A. BLAZEVICH
Resident Ass't Secretary

The above and foregoing Bond Approved this 20th day of July, A. D. 1917.

T. C. MACMILLAN,
Clerk.

(Endorsed) Filed July 20, 1917, T. C. MacMillan, Clerk.

e for
cript of
d, filed
6, 1917.

86 PRAECIPE FOR RECORD.

United States of America,
Northern District of Illinois, } ss.
Eastern Division.

IN THE DISTRICT COURT OF THE UNITED STATES

For the Eastern Division of the

Northern District of Illinois.

United States of America,
vs.
Economy Light and Power Company. } No. 29776.

Praecipe for Record.

To the Clerk of Said Court:

The clerk will please prepare and authenticate a transcript of the record in the above entitled cause on appeal to the

Praecipe for transcript of record, etc. Aug. 6, 1917.

United States Circuit Court of Appeals for the 7th Circuit, and include therein the following:

1. Bill of Complaint, filed December 14, 1909.
2. Answer of defendant, filed Feburary 28, 1910.
3. Replication of complainant to defendant's answer, filed April 11, 1910.
4. Order allowing amendment to answer, entered May 25, 1917.
5. Amendment to answer, filed May 25, 1917.
6. Proofs of complainant and defendant, filed May 25, 1917, nunc pro tunc as of December 4, 1912.
7. Orders entered July 3, 1917, that proofs received in evidence upon hearing of the case, and not appearing in printed abstracts of proofs, and defendant's Exhibit 1, 2, 3, and 4, admitted in evidence on the 20th day of December, 1915, be filed nunc pro tunc, as of December 20, 1915.
8. Proofs and Exhibits filed July 3, 1917, nunc pro tunc, as of December 20, 1915, pursuant to order last above mentioned.

87 9. Opinion of Judge Landis, filed Nov. 28, 1916.

10. Petition for appeal, filed July 14, 1917.
11. Order allowing appeal and ordering citation to issue, entered July 14, 1917.
12. Assignment of Errors, filed with petition for appeal, July 14, 1917.
13. Appeal bond, filed and approved July 20, 1917.
14. Pursuant to order of July 14, 1917, allowing appeal you will also transmit to the clerk of the United States Circuit Court of Appeals for the 7th Circuit the original book of Maps, filed May 25, 1917, nunc pro tunc as of December 4, 1912.

SCOTT, BANCROFT, MARTIN & STEPHENS,
Solicitors for Defendant.

O. K.

CHARLES F. CLYNE,
United States Attorney,
Solicitor for Complainant.

(Endorsed) Filed Aug. 6, 1917, T. C. MacMillan, Clerk.

cate of 88 Northern District of Illinois } ss.
Eastern Division.

I, T. C. MacMillan, Clerk of the District Court of the United States for the Northern District of Illinois, do hereby certify the above and foregoing to be a true and complete transcript of the proceedings had of record, made in accordance with Praecipe, filed in this Court, in the cause entitled United States of America, vs. Economy Light and Power Company, as the same appear from the original records and files thereof, now remaining in my custody and control.

In Testimony Whereof, I have hereunto set my hand and affixed the seal of said Court, at my office, in the City of Chicago, in said District, this sixth day of August, 1917.

T. C. MacMillan,
(Seal) *Clerk.*

89 United States of America, } ss.
Northern District of Illinois. }

In the District Court of the United States

United States of America,
vs.
Economy Light and Power Company. } 29776.

VOLUME IV OF PROOFS.

(Endorsed) Filed July 3, 1917, Nunc pro tunc as of December 20, 1915. T. C. MacMillan, Clerk.

s from 90 MATTERS INTRODUCED UPON THE HEARING AND NOT APPEARING IN THE PRINTED RECORD.

Introduced on behalf of Complainants.

Excerpts from book entitled, "A View of the Lead Mines of Missouri, including some observations on the Mineralogy, Geology, Geography, Antiquities, Soil, Climate, Population and productions of Missouri and Arkansas, and other sections of the western country. Accompanied by three engravings. By Henry R. Schoolcraft, Corresponding Member of the Ly-

ceum of Natural History of New York, New York. Published by Charles Wiley and Company, No. 3 Wall Street, 1819." Excerpts from book.

"The River Plein, the main head fork of Illinois, approaches so near the head of Chicago River, which enters Lake Michigan at Fort Dearborn, that a communication exists in high water. I conversed with a trader last summer at St. Louis, who had come through in the spring, and afterwards saw his boat lying at the wharf. It carried from 4 to 6 tons, and was built skiff-fashion, with a flat bottom. He represented the undertaking as easy of execution, not requiring an artificial cut of more than 2 miles, and this through an alluvial soil." (p. 41)

"The Illinois is also a stream affording a great length of navigation, and lands of superior quality, and has a natural connection with the great north western lakes, by which boats may, at certain seasons, uninterruptedly pass from Lake Superior, and the Lake of the Woods." (p. 161)

"The Illinois is navigable 300 miles, and when the communication between it and Lake Michigan—between the Mississippi, and Lake Superior, and the Lake of the Woods—between the Missouri and the Columbia—between the Yellowstone and the Multnomah, shall be effected, communica-
91 tions not only pointed out, but almost completed by nature, what a chain of connected navigation shall we behold! and by looking upon the map, we shall find St. Louis the focus where all these streams are discharged, the point where all this vast commerce must centre, and where the wealth, and the refinements flowing from these prolific sources, must preeminently crown her the queen of the west." (p. 243)

At the request of counsel for defendant the counsel for complainant also read the following from the same book:

"A man who merely rides through a country, cannot be expected to publish much valuable information concerning it. The inquiry of a moment, the surmises of ingenuity, and the probability of things, can never atone for sound statistical information, practical remarks, and acknowledged facts. It is necessary to enter into details, before we can arrive at a general result—to establish small facts in order to render larger ones certain—to view in detached bodies, as well as collectively, and indeed before we can pretend to decide on the character of a country to collect, compare, and contrast all its advantages and all its disadvantages; and this cannot be done in a moment. A man may have a glimpse, and not a view—he may see, and yet not understand—he may believe, and yet be mistaken. It is from these facts, and

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knowing how deep first impressions, however erroneous, sink, that I have been induced to hint at the superficial accounts of preceding tourists; and however exceptionable the remark may be in a general sense, it applies forcibly in a particular one. I allude to some works on the western country now generally read at the eastward—to some who are even referred to as text books—to labours of mercenary pamphleteers, as catchpenny printers, where we are served up with surmises instead of facts, with bloated descriptions instead of simple accounts; and the authors of which, in many instances, know not the countries they describe, and have neither admired the beauties, or shrunk at the deformities, which they picture." (p. 52.)

"Copy of Instructions for Deputy Surveyors, Received With Letter From Edward Tiffin, North West of the Ohio, Dated July 26, 1815."

"General Instructions":

"The courses of all navigable rivers, which may bound or pass through your district must be accurately surveyed and their width taken at those points where they may be intersected by township or sectional lines; also the distance
92 of those points from the sectional corners and from the commencement of any course where you are meandering the River, you will likewise not fail to make special notice of all streams of water which fall in your way with their width and course from whence they appears to come or run." (p. 8)

"In meandering Rivers you will take the bearings according to the true meridian of the River and note the distance on any course when the River intersects the sectional lines, and the calculations of the contents of the fractions are to be made by the tables of Difference of Latitude and Departure, and returned on your plats; but the quantity of contents of the whole section only are to be put down; in all the other sections, and each of them is to be accounted one mile square or 640 acres, unless your closing lines deviate very much from 80 chains, in which case you will be careful to put down their true length on your plats." (Par. 7, p. 6)

"Life and Writings of DeWitt Clinton," by William W. Campbell, Published at New York by Baker and Scribner, in 1849.

"We visited the Adams, a brig of 150 tons and four guns, belonging to the United States, commanded by Commodore Brevoort, who appears to be a worthy officer. This is the only vessel we have on the lakes, and she is employed in transporting military stores. She can make a voyage to Fort Dear-

born, upwards of 1000 miles, on Lake Michigan, and return, in two months. The British have two armed vessels on this lake, one pierced for sixteen, and the other for twelve guns, and a fort to the south-west of Black Rock, called Fort Erie, and garrisoned by a Lieutenant and twenty men. Excerpts book.

"Commodore Brevoort says that vessels drawing seven feet water, can at some seasons go from Fort Dearborn to Chaquagy (Chicago) up a creek of that name, and to the
93 Illinois River, whose waters in freshets meet, and so down the Mississippi; he thinks he can effect it in his brig, which draws but six feet when lightened. A brig of 150 tons, sailing from Black Rock to Hudson, would seem incredible." (p. 140)

INTRODUCED BY DEFENDANT.

Letter. Nov. 29,

Letter of J. W. Woermann, C. E. Civil and Hydraulic Engineer, assistant engineer, United States Army, St. Louis, Missouri, November 29, 1911.

"Dear Sir:—

You will probably recall that during my testimony in the Economy case I offered to look up the original computations on which were based the velocities given in the table on page 41 of House Document No. 263, 59th Congress, 1st Session.

"I expected to take this up promptly, but my regular duties prevented me from doing so. Recently I have gone over the Miscellaneous computations relating to the Ernst Report but I have been unable to find any data which would throw any light on the subject except that the computation for the additional depth required through Joliet was made subsequent to the computation of velocities during high water.

"After considering the matter more carefully I have come to the conclusion that the values given in the published table represent the velocities in the unimproved channel and
94 not after the river has been deepened.

"Please see that this statement is added to the record and oblige,

Yours very truly,
J. W. WOERMANN."

"An Act to Create Sanitary Districts and to Remove Obstructions in the Desplaines and Illinois Rivers: Sections 23 of Act t Sanit Distri

Section 7. "The board of trustees of any sanitary district organized under this act shall have power to provide for the drainage of such district by laying out, establishing, con-

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structing and maintaining one or more main channels, drains, ditches and outlets for carrying off and disposing of the drainage (including the sewage) of such district, together with such adjuncts and additions thereto as may be necessary or proper to cause such channels or outlets to accomplish the end for which they are designed in a satisfactory manner; also to make and establish docks adjacent to any navigable channel made under the provisions hereof for drainage purposes, and to lease, manage and control such docks, and also to control and dispose of any water-power which may be incidentally created in the construction and use of said channels or outlets, but in no case shall said board have any power to control water after it passes beyond its channel, waterways, races or structures into river or natural waterway or
95 channel, or water-power or docks, situated on such river or natural waterway or channel; Provided, however, nothing in this act shall be construed to abridge or prevent the State from hereafter requiring a portion of the funds derived from such water power, dockage or wharfage to be paid into the State Treasury to be used for State purposes. Such channels or outlets may extend outside the territory included within such sanitary district, and the rights and powers of said board of trustees over the portion of such channel or outlet lying outside of such district shall be the same as those vested in said board over that portion of such channels or outlets within the said district."

Section 23: * * * "And the Canal Commissioners, if they shall find at any time that an additional supply of water has been added to either of said rivers, by any drainage district or districts, to maintain a depth of not less than six feet from any dam owned by the State to and into the first lock of the Illinois and Michigan Canal at La Salle, without the aid of any such dam, at low water, then it shall be the duty of said Canal Commissioners to cause such dam or dams to be removed. This act shall not be construed to authorize the injury or destruction of existing water-power rights."

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96 "A Narrative of the Captivity and Adventures of John Tanner, (U. S. Interpreter at the Sault De Ste. Marie) During Thirty Years Residence Among the Indians in the Interior of North America. Prepared for the Press by Edwin James, M. D., Editor of an Account of Major Long's Expedition from Pittsburgh to the Rocky Mountains. New York: G. & C. & H. Carvill, 108 Broadway, 1830."

"In an attempt to aid this unfortunate individual in ad-

dressing his countrymen, it seemed desirable to give his narrative, as nearly as possible, in his own words and with his own manner. The narrator himself is not without a share of that kind of eloquence which we meet with among the Indians. 'A Narra... the C... and A... tures ... Tanne...

(Page 4)

"From Hopkinsville I returned to the house of my step-mother, where I made my preparations to go to the Lake of the Woods. Part of my relatives, who had accompanied me from beyond the Mississippi, had returned to their own homes; but my brother and his wife stayed to travel with me. From my brother Edward's house, near New Madrid, I went again to Jackson, where I was taken sick. My stock of money had now increased, through the voluntary donations of those friendly and charitable people among whom I had passed, to give hundred dollars, and, this being all in silver, would, my brother thought, be the means of exposing me to danger, and bringing me into difficulty, should I travel by myself; he, therefore refused to leave me.

97 "From Jackson we went together to St. Louis where we saw Gov. Clark, who had already given much assistance to my brother in his journeys in search of me. He received us with great kindness, and offered us whatever assistance we might think necessary in accomplishing the object I now had in view, which was, to bring my family from the Indian country. My brother wished to accompany me, and to take a considerable number of men, to aid, if it should be necessary, in taking my children from the Indians; but I went one day to Gov. Clark by myself, and told him he must not listen to my brother, who knew little of the country I was going to visit, or of what was needful to my success in the attempt to bring out my family. In truth, I did not wish my brother, or any other white man, to accompany me, as I knew he could not submit to all the hardships of the journey, and live as I should be compelled to live, in an Indian Lodge, all winter. Furthermore, I was aware that he would be rather an incumbrance than any help to me. Gov. Clark wished to send me to the Lake of the Woods by way of the Upper Mississippi; but I was not willing to go that way, on account of the Sioux, through whose country I must pass. He gave me a Mackinac boat, large enough to carry sixty men, with a sufficient crew, three barrels of flour, two of hard bread, guns, tents, axes, &c., &c. Having prevailed on my brother to return, I set off. The current of the Mississippi, below the Missouri, soon convinced me that my large and heavy boat

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was not well adapted to the nature of my undertaking, and at Portage De Sioux I left it. From this place I pro-
98 ceeded in a small canoe, with two men, to the head of the Illinois River, thence to Chicago." (Page 253)

"As the winter came on, I went to Red River to hunt buffaloe, and make dry meat, and early in the spring I started to come to the states. From my first wife I had parted ten years before the time I now speak of; but the urgency of the Indians, and, in part, the necessity of my situation, had compelled me to take another. By this woman I had three children; those by my former wife were not at present in the village. My wife refusing to accompany me, I took the three children and started without her. At Rainy Lake she overtook me, and agreed to accompany me to Mackinac.

"On my way down I was assisted by the North West Company. At Drummond's Island I was disappointed of large presents given me when on my way to the Lake of the Woods, but which, as I did not then wish to take, were promised me on my return. The commanding officer who had shown me so much kindness, had been relieved by another, of a very different character, one who seemed to find no satisfaction in doing anything for any person connected with the Indians. This man refused to see me, or afford me any assistance. By the kindness, however, of Mr. Ermatinger, of the Sault De St. Marie, I was enabled to reach Mackinac.

"Col. Boyd, the Indian agent at that time at Mackinac, called me to him, and wished to hire me a striker in his smith's shop; but not liking the employment, I did not wish to remain. He gave me one hundred pounds of flour, the same quantity of pork, some whiskey, tobacco, &c. There were two vessels about to sail for Chikago, but neither of them
99 would take me as a passenger, though I had money enough, and was willing to pay them. As I had no other alternative, I was compelled to purchase from the Indians a poor and old bark canoe, for which I gave sixty dollars, and I engaged three Frenchmen to accompany me; but Col. B.—— would not permit them to go. He gave me, however, a letter to Dr. Wolcott, who was now Indian agent at Chicago, and I started with only one man to assist me.

"At the Ottawwaw settlement of Waw-gun-nuk-kiz-ze I stopped for a short time, and finding that my canoe was too frail and leaky to perform the voyage, I purchased another, a new one, for which I gave eighty dollars. Several of my acquaintances among the Ottawwaws determined to accompany me, and started accordingly, eight men in one canoe, and six

in another, with some women. They went on with me until we arrived within one or two days' journey of Chikago, when meeting other Indians, with discouraging accounts of the state of the water in the Illinois, they left me and went back. My wife returned with them." (Page 255)

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1073 "When I arrived in Chikago, I was sick of a fever, and my provisions being exhausted, I was in great distress. I went to Dr. Wolcott to present him the letter from Col. Boyd, the Indian agent at Mackinac, but he would not receive it, nor take any notice of me. He knew well who I was, as he had seen me when I passed through Chikago before, and I could not tell why he refused me assistance. I had my tent set up at a little distance from his house, near a wild rice swamp, and for several days, though I was so much more unwell that I was scarce able to sit up five minutes at a time, I subsisted my children by shooting the black birds as they came and settled on the rice. When I was again able, with the aid of two sticks, to crawl to the house of Dr. Wolcott, I went to represent to him that my children were in danger of perishing of hunger; but he drove me harshly away. When I left his door I shed some tears, which it was not common for me to do; but I was rendered womanish by my sickness. Three or four times I fainted, and lay long by the road side, on the way from his house to my tent. But my sufferings, and those of my children, were shortly afterwards relieved by a Frenchman, who had been to carry some boats across the Portage. His wife was an Ojibbeway woman, and commonly accompanied him when he went to take any boats across. Though his horses were now much worn out with the long journey from which he had returned, he agreed to take me and my canoe sixty miles, and if his horses could hold out, the whole one hundred and twenty, which was, at the present stage of water, the length of the Portage, for which I agreed to pay him agreeable to his demand, which I thought very moderate. He lent me, also, a young horse to ride, as I was far too

1074 weak to think of walking, and he thought I could ride on horseback much more comfortably than in the cart with the canoe. Before we arrived at the end of the sixty miles, he was taken sick, and as there was now a

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little water in the river, I concluded to put my canoe in, and try to descend in it.

His young horse, the night after I gave it up to him, was stolen by the Po-ta-wato-mies. He was seized with the bloody flux, but as he had a young man with him, I rendered him what assistance I could in starting, and let him go back. My Frenchman had deserted me soon after I left Chikago, and I had now no person to assist me except an old Indian, called Gos-so-kwaw-waw, (the smoker). We put the canoe in the water, but we could not get into it ourselves, only sometimes the children were put in, and we took them down, one walking at the bow, the other at the stern of the canoe. We had proceeded no more than three miles, when I found that this method was likely to prove so laborious and slow, that I thought best to engage a Po-ta-wato-mie, whom I met
1075 there, and who agreed for a blanket and a pair of leggins, to take my baggage and my children on his horses to the mouth of the An-num-mum-ne-Se-be, or Yellow Ochre River, a distance of sixty miles. The An-num-mun-ne comes from towards the Mississippi, and below it there is always, in the Illinois, water enough for canoes. I felt somewhat afraid to trust the Po-ta-wato-mie with my children, and the baggage, which contained some valuable property, but old Gos-so-kwaw-waw was of opinion that he would prove honest. When he put the children on the horses, he said, 'In three days I shall be at the mouth of the An-num-mun-ne River, and shall wait for you there.'

Without any farther words, we parted, and the old Smoker and myself continued our laborious and difficult route along the bed of the Illinois. Most of the country, on both sides the route, from Chikago to the Yellow Ochre River, are prairie, in which horses and carts can be driven without any difficulty. On our arrival at the place appointed, we found the Po-ta-wato-mie there, and all safe.

We now embarked every thing together in the canoe, and went down to Fort Clark, which is on a narrow neck of land, between two lakes, and is thence called by the Indians Ka-gah-gum-ming.

1076 At Cape Guirardeau, where I left my canoe, and where I remained but a very short time, I saw some of the gentlemen of Major Long's party, then on their return from the Rocky Mountains. This was in the fall of the year 1820, and was about one year after my first arrival on the Ohio in 1819. From the time of my capture by Manito-o-geezhik and Gish-kaw-ko, just thirty years had elapsed, before I started in the spring of 1819, from the Lake of the Woods. So that it must have been in the spring of the year 1789, that I was taken prisoner. I am now forty-seven years old.

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In the spring of 1822, I started to go again to the north, not finding that I was content among my friends in Kentucky. I went by way of the Grand Prairie, and having given my canoe to my brother, I took horses, and putting my children on them, I came to St. Louis, thence by way of the Illinois, towards Chikago.

The Indian agent for Fort Clark lived at this time at a place called Elk Heart, some distance below. He, as well as most of the people on this route, had been kind, and had shown a disposition to assist me whenever I needed any thing. On this journey I stopped at Elk Heart, at the house of the agent, and though he was not himself at home, I had my horses fed, and was supplied with what refreshment I needed for myself and children, free of expense. On the following day, I met the agent
1077 on his way home from Fort Clark, and told him of the reception I had met at his house in his absence. He was glad to hear of this, and he told me that I should soon come to a bad river to cross; 'but' said he, 'there is a boat now on this side, in which I have just crossed. The man to whom it belongs, lives on the other side. You must use the boat to cross, and then tell him to take it around to the other river, which is beyond his house, and help you to cross that, and I will pay him for his trouble.' We crossed accordingly, but my daughter Martha being now sick, we stopped all day near the house of the man to whom the canoe belonged. I had one very handsome horse, which had been given me by my brother, and which this man said he was determined to have from me. He offered to buy it; but I told him the horse was necessary to my journey, and I could by no means part with it.

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Still he insisted, and said, unless I would let him have the horse, I should not have his canoe to cross the other river. He cursed and abused me, but all the means he could use, did not induce me to give up the horse. The canoe had been taken around to the river I had to cross, for the use of some other person, and when I was ready to go I started, expecting to find it there. But on my way to the ferry, I met the man on horseback, who said to me, 'I have taken away the canoe, and you cannot cross.' Without regarding this, I went on, and when I arrived, I found the canoe was indeed gone, and that there were no logs, or other materials to make a raft. Fearing to endanger the children, by swimming them across on the
1078 horse's backs, I stood for some time in doubt what to do. At last I recollected, that if he had hid the canoe, as was most probably the case, his track would lead me to it. Then going back to the road, a considerable distance from the river, I found his track coming into it. This I followed, until I found the canoe hid in thick bushes, about a mile below the ferry. Taking it up to the crossing place, I carried my children, and led the horses over; then giving the canoe a push into the stream, I said to it, 'go, and stay where your master hides you.' ''

(Endorsed) United States Circuit Court of Appeals For the Seventh District Economy Light and Power Co. a Corporation, Appellant, vs. United States of America, Appellee. Stipulation. Filed Feb 8—1918 Edward M. Holloway, Clerk

100 Defendant's Exhibits 1, 2, 3, and 4 introduced in evidence March 20, 1915.

101 DEFT'S EX. 2. Defendant's Exhibit 2.

State of Illinois } ss.
Grundy County. }

IN THE CIRCUIT COURT THEREOF

To the March Term, 1908.

To the Honorable the Judges of the Circuit Court of Grundy County, In Chancery Sitting:—

102 William H. Stead, the Attorney General of the State of Illinois, who sues for the People of the said State of Illinois in this behalf, and at the relation of Charles S. Deneen, Governor of the State of Illinois, comes now here, and in the name and by the authority thereof, gives this Honorable Court to understand and be informed, as follows, to wit:

I. That the said People of the State of Illinois, by their said Attorney General, bring this their suit against The Economy Light and Power Company, a corporation, duly organized under the laws of the State of Illinois, and having its principal office and place of business at the City of Chicago, in the County of Cook and State of Illinois.

II. That in the early history of our country a certain territory embracing what is now the States of Ohio, Indiana, Illinois, Michigan and Wisconsin, was claimed to be owned by Virginia, and that afterwards, by certain Acts of the Legislature of Virginia, and by its deed of cession, bearing date the first day of March, A. D. 1784, said territory was conveyed to the United States, and that afterwards, and, to wit, on the 13th day of July, A. D. 1787, the Congress of the United States, then existing under the Articles of Confederation, enacted a certain ordinance entitled, "An Ordinance for the Government of the Territory of the United States Northwest of the River Ohio," and which said Act was and is commonly known as the ordinance of 1787. That among other provisions of said ordinance of 1787, Section 14 thereof contains the following:

103 "It is hereby ordained and declared, by the authority

aforesaid, that the following articles shall be considered as articles of compact, between the original States and the people and States in the said territory, and forever remain unalterable, unless by common consent, to wit, * * * Article 4. * * The navigable waters leading into the Mississippi and St. Lawrence, and the carrying places between the same, shall be common highways, and forever free, as well to the inhabitants of the said territory as to the citizens of the United States and those of any other States that may be admitted into the Confederacy, without any tax, impost duty therefor."

That afterwards, and on, to wit, the 18th day of May, 1796, said Congress of the United States passed a certain statute entitled, "An Act providing for the sale of the lands of the United States in the territory northwest of the River Ohio and above the mouth of the Kentucky River, and by Section 9 thereof provided as follows:

"Sec. 9. And be it further enacted that all navigable rivers within the territory to be disposed of by virtue of this Act, shall be deemed to be and remain public highways."

That thereafter, and to wit, by a statute duly passed by the Congress of the United States on the 7th day of May, 1800, entitled, "An Act to divide the territory of the United States northwest of the Ohio into two separate Governments," there was divided and set apart from said Northwestern territory a certain portion thereof which embraces all of what is now the State of Indiana and the State of Illinois, and provided the same should constitute a separate territory, to be called the Indiana Territory.

104 That thereafter the Congress of the United States, acting under the constitution of 1789, for the further government of certain portions of the said Northwestern Territory, and on, to wit, the 26th day of March, 1804, duly passed a certain statute entitled, "An Act making provision for the disposal of the public lands in the Indiana Territory, and for other purposes"; and by Section 6 thereof, it was provided that "All the navigable rivers, creeks and waters within the Indiana Territory shall be deemed to be and remain public highways."

That afterwards the Congress of the United States, by its Act of February 3, 1809, entitled "An Act for Dividing the In-

diana Territory into two separate Governments," provided, among other things, that that portion of the said Indiana Territory which now comprises the State of Illinois, for the purposes of temporary government, should constitute a separate territory to be called Illinois; and that among other and further provisions in said Act it is provided: Defendant's Exhibit 2.

"That there shall be established within the said territory a government in all respects similar to that provided by the ordinance of Congress passed on the 13th day of July, 1787, for the government of the territory of the United States, northwest of the River Ohio; and by an Act passed on the 7th day of August, 1789, entitled 'An Act to provide for the Government of the Territory Northwest of the River Ohio'; and the inhabitants thereof, shall be entitled to and enjoy all and singular the rights, privileges and advantages, granted and secured to the people of the Territory of the United States northwest of the River Ohio by said ordinance.

That afterwards, and, on to wit, the 18th of April, 105 1818, the Congress of the United States enacted another statute, entitled "An Act to enable the people of Illinois to form a constitution and State Government, and for the admission of such State into the Union, on an equal footing with the original States," which statute contains the following provision:

"Sec. 4. And be it further enacted * * * Provided, that the same, whenever formed, shall be republican, and not repugnant to the ordinance of the 13th of July, 1787, between the original States and the people and States of the territory northwest of the River Ohio, excepting so much of said articles as relates to the boundaries of the States therein to be formed: * *"

That afterwards the people of the Illinois territory duly adopted the constitution known as the Constitution of 1818, the preamble of which contains the following, to wit:

"The people of the Illinois Territory, having the right of admission into the general government as a member of the Union, consistent with the Constitution of the United States, the Ordinance of Congress of 1787, and the law of Congress, approved April 18, 1818, entitled 'An Act to enable the people of the Illinois Territory to form a Constitution and State government, and for the admission of such State into the Union on an equal footing with the original States, and for other purposes'; in order to establish justice, promote the wel-

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fare and secure the blessing of liberty to themselves and their posterity, do, by their Representatives in convention, ordain and establish the following Constitution or form of government and do mutually agree with each other to form themselves into a free and independent State, by the name of the State of Illinois."

That afterwards, and, to wit, on December 3rd, 1818, the Congress of the United States adopted a certain resolution entitled, "Resolution declaring the admission of the State of Illinois into the Union," which declared, among other
106 things, that the "Constitution and State government, so formed, is republican, and in conformity to the principles of the articles of compact between the original States and the people and States in the territory northwest of the River Ohio, passed on the 13th day of July, 1787. * * *"

III. That the River Desplaines is situated in said territory, and rises in what is now the State of Wisconsin, and flows in a southerly direction into the State of Illinois, and through the Counties of Lake and Cook and between Du Page and Cook Counties therein, and through the County of Will and into Grundy County, in all a distance of about 96 miles.

That the River Kankakee rises in Indiana and flows westerly therefrom into Illinois through Kankakee and Will Counties and into Grundy County therein, where it unites with the Desplaines River, and with the said Desplaines River forms the Illinois River, which last named river flows thence westerly and southwesterly through several counties of Illinois into the Mississippi River. Wherefore and by reason whereof your orators charge the fact to be that the Desplaines River is wholly within the territory originally comprising what was known as the Northwestern Territory, and that the same empties its waters into the Mississippi River, and, by reason of the facts hereinafter set forth, is subject to the provisions of the said Acts of Congress.

107 IV. Your orators further show unto your Honors that it is shown by the history of the explorations and discoveries of the territory in what is now the northern part of Illinois, that at the time of the explorations and discoveries, the Desplaines River was navigable from a point near where is now situated the City of Chicago, in the State of Illinois, to the mouth of said Desplaines River, in what is now Grundy County, Illinois; that by the same history it is shown that the portion of the Desplaines River last above mentioned was used in the early period of the State of Illinois as highway

for commercial purposes; that commerce was carried on over said river and over the Chicago River, located in Cook County, Illinois, and connection therewith made by a short portage between the two rivers near the site of what is now the City of Chicago, Cook County, Illinois, and was in use as the highway of commerce, leading from Lake Michigan and the waters emptying into the St. Lawrence River on the one hand, to the Illinois River and the waters of the Mississippi River on the other hand, thenceforward from the time of said first use up to and at the time when the said ordinance of 1787 and the several acts of Congress were respectively enacted. Defendant's Exhibit 2.

That afterwards the State of Illinois, by and through the Legislature thereof, and in obedience to the several acts of Congress hereinbefore set forth, assumed and took charge of the said Desplaines River, and in the exercise of its con-
108 trol over the said Desplaines River, did by its certain act, entitled, "An Act to authorize the building of a bridge across the Desplaines River," approved and in force February 19, 1839, gave permission for the building of a toll bridge across the Desplaines River, on the northeast quarter of Section number eleven (11), in towship number thirty-nine (39) north, in Range number twelve (12), east of the Third Principal Meridian; and also, by the same act, permission was given to build another bridge across the same river, on the southeast quarter of Section number two (2) in the same Town and Range last above mentioned; and that afterwards the Legislature of the State of Illinois passed a certain law, entitled, "An Act to amend the several laws in relation to the Illinois and Michigan Canal," in force February 26, 1839, which contain. among other provisions, the following, to wit:

"Sec. 2. Sub-section 9. That no stream of water passing through the canal lands shall pass by the sale so as to deprive the State from the use of such water if necessary to supply the canal without charge for the same.

And that Sub-section 11 of said Section 2 of said Act is in the words as follows, to wit:

"Sub-Sec. 11. Lands situated upon streams which have been meandered by the surveys of public lands by the United States should be considered as bounded by the lines of those surveys, and not by the streams."

109 That afterwards the Legislature of the State of Illinois, by its certain laws then passed, entitled, "An Act declar-

ing the Desplaines River a navigable stream," approved and in force February 28th, 1839, provided as follows:

"Sec. 1. Be it enacted by the people of the State of Illinois, represented by the General Assembly, That the Desplaines River from the point where it most nearly connects itself with the Illinois and Michigan Canal to its source within the boundaries of this state, is hereby declared a navigable stream, and shall be deemed and held a public highway, and shall be and remain free, open and unobstructed from said point of connection with said canal to its utmost limit within this state for the passage of all boats and water crafts of every description";

And that afterwards the Legislature of the State of Illinois, by its statute passed and in force March 3, 1845, entitled "An Act to authorize Stephen Forbes to construct a dam across the Desplaines River in Cook County", provided as follows, to wit:

"Sec. 1. Be it enacted by the People of the State of Illinois, represented by the General Assembly, that Stephen Forbes, or his heirs and assigns, be, and they are hereby authorized to construct, build and continue a mill dam across the Desplaines River, on the south west quarter of Section thirty-six (36) in Township No. thirty-nine (39) North of Range twelve (12), east, and on the northeast quarter of Section two (2), Township No. thirty-eight (38) North of Range twelve (12), east, in the County of Cook in this state; provided that this act shall not operate to prevent the state from improving said river by dams, or from using the water in said river for the Illinois and Michigan Canal at any time hereafter, or for any other purpose; provided, that he shall be liable for any damage to any individual in consequence of the erection of such dam."

And that afterwards the Legislature of the State of Illinois, by its certain law, entitled, "An Act authorizing the build-
110 ing of a bridge and road in Township 36 North, Range 10, east, in Will County," approved and in force February 12, 1849, authorized the construction of a bridge over the Desplaines River at Lockport in Will County, Illinois.

That afterwards the Legislature of the State of Illinois, by its certain act, entitled "An Act to create sanitary districts and to remove obstructions in the Des Plaines and Illinois Rivers," approved May 29th, 1889, in force July 1, 1889, among other things provided as follows:

"Sec. 23. If any channel is constructed under the provisions hereof by means of which any of the waters of Lake

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Michigan shall be caused to pass into the Des Plaines or Illinois Rivers, such channel shall be constructed of sufficient size and capacity to produce and maintain at all times a continuous flow of not less than three hundred thousand cubic feet of water per minute, and to be of a depth of not less than fourteen feet, and a current not exceeding three miles per hour, and if any portion of any such channel shall be cut through a territory with a rocky stratum where such rocky stratum is above a grade sufficient to produce a depth of water from Lake Michigan of not less than eighteen feet, such portion of said channel shall have double the flowing capacity above provided for, and a width of not less than one hundred and sixty feet at the bottom capable of producing a depth of not less than eighteen feet of water. If the population of the district drained into such channel shall at any time exceed one million five hundred thousand, such channel shall be made and kept of such size and in such condition that it will produce and maintain at all times a continuous flow of not less than twenty thousand cubic feet of water per minute for each one hundred thousand of the population of such district, at a current of not more than three miles per hour, and if at any time the general government shall improve the Des Plaines or Illinois rivers, so that the same shall be capable of receiving a flow of six thousand cubic feet of water per minute, or more, from said channel, and shall provide for the payment of all damages which any extra flow above three hundred thousand cubic feet of water per minute from such chan-
111 nel may cause to private property so as to save harmless the said district from all liability therefrom, then such sanitary district shall within one year thereafter, enlarge the entire channel leading into said Desplaines and Illinois Rivers from said district to a sufficient size and capacity to produce and maintain a continuous flow throughout the same of not less than six hundred thousand cubic feet of water per minute with a current of not more than three miles per hour, and such channel shall be constructed upon such grade as to be capable of producing a depth of water not less than eighteen feet throughout said channel, and shall have a width of not less than one hundred and sixty feet at the bottom. In case a channel is constructed in the Des Plaines River as contemplated in this section it shall be carried down the slope between Lockport and Joliet to the pool commonly known as the upper basin, of sufficient width and depth to carry off the water the channel shall bring down from above. The district constructing a channel to carry water from Lake Michigan

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of any amount authorized by this Act may correct, modify and remove obstructions in the Des Plaines and Illinois rivers wherever it shall be necessary so to do to prevent overflow or damage along said river, and shall remove the dams at Henry and Copperas creek in the Illinois River, before any water shall be turned into the said channel.

And the canal commissioners, if they shall find at any time that an additional supply of water has been added to either of said rivers, by any drainage district or districts, to maintain a depth of not less than six feet from any dam owned by the State to and into the first lock of the Illinois and Michigan canal at La Salle, without the aid of any such dam, at low water, then it shall be the duty of said canal commissioners to cause such dam or dams to be removed. This act shall not be construed to authorize the injury or destruction of existing water power rights.

And also in the same Act it is provided:

"Sec. 24. When such channel shall be completed and the water turned therein, to the amount of 300,000 cubic feet of water per minute, the same is hereby declared a navigable stream, and whenever the general government shall improve the Des Plaines and Illinois rivers for navigation, to connect with this channel, said general government shall have full control over the same for navigation purposes, but not to interfere with its control for sanitary drainage purposes."

112 That afterwards the Legislature of the State of Illinois on the 14th day of May, 1903, enacted a certain statute which became in force on the 1st of July, 1903, entitled, "An Act on relation to the sanitary district of Chicago, to enlarge the corporate limits of said district, and to provide for the navigation of the channels created by such district, and to construct dams, water wheels and other works necessary to develop and render available the power arising from the water passing through its channels, and to levy taxes therefor," which said Act contained, among other things, the following provisions, to wit:

"Sec. 3. Said Sanitary District shall permit all water craft navigating or purporting to navigate said Illinois and Michigan Canal, to navigate the water of all said channels of said Sanitary District promptly, without delay and without the payment of any tolls or lockage charges for so navigating in said channels. The rules of the United States Government now in force, regulating navigation on the Chicago River, shall govern navigation on the channels of said Sanitary District of Chicago;

Defendant's Exhibit

Provided, however, that the speed of all vessels while passing through the earth sections shall not exceed eight miles per hour.

"Sec. 8. The said Sanitary District shall, at the expense of said district, in all respects comply with the provisions of the Act of Congress of March 22, 1822, and March 2, 1827, as construed by the courts of last resort of the State of Illinois, and of the United States in relation to the Illinois and Michigan Canal so far as it affects that portion of the Illinois and Michigan Canal vacated or abandoned in the terms of this act."

And your orators show that after the passage of the said statute of May 29th, 1889, a Sanitary District was formed in pursuance thereof, known as the Sanitary District of Chicago, and said Sanitary District of Chicago has con-
113 structed a channel substantially in compliance with the provisions of said statute. That said channel begins at a point of junction with the Chicago River in the City of Chicago and extends southwesterly through the County of Cook into the County of Will, where it connects with and empties its waters into the Desplaines River, and is now and for several years last past has been discharging into said Desplaines River at a point north of Joliet in Will County, a body of water drawn from Lake Michigan through the Chicago River and through said drainage channel, amounting to about 300,000 cubic feet of water per minute, and your orators show that said body of water mingles with the waters of the Desplaines River, and flows thenceforward through the course of the Desplaines River to the mouth of said river, on Section number twenty-five (25) Town number thirty-four (34) North, Range number eight (8) East of the Third (3rd) Principal Meridian in Grundy County.

That afterwards the Legislature of the State of Illinois enacted its certain statute, and the same became in force by approval from and after the 6th day of December, 1907, as follows, to wit:

"A Bill for an Act recognizing the Des Plaines and Illinois Rivers as navigable streams and to prevent obstructions being placed therein, and remove obstructions therein now existing.

Section 1. Be it enacted by the People of the State of Illinois, represented in the General Assembly: That the Des Plaines and Illinois Rivers throughout their courses from and below the water power plant of the main channel of the

Sanitary District of Chicago in the township of Lock-
114 port, at or near Lockport, in the County of Will, are hereby recognized as and are hereby declared to be navigable streams; and it is made the special duty of the Governor and of the Attorney General to prevent the erection of any structure in or across said streams without explicit authority from the General Assembly; and the Governor and Attorney General are hereby authorized and directed to take the necessary legal action or actions to remove all and every obstruction now existing in said rivers that in any wise interferes with the intent and purpose of this Act.

Sec. 2. Whereas an emergency exists: this Act shall be in force and effect from and after its passage."

That the relator, Charles S. Deneen, is the Governnor referred to in said statute, and that he by virtue and reason of said statute and in the direction therein contained, as well as by virtue of his office as Governor, and his constitutional duty to take care that the laws be faithfully executed, has a special interest and responsibility in the matters herein set forth.

Your orators further show that the Des Plaines River has, from the time when said ordinance of 1787 was passed by the Congress of the United States unto the present time, formed in its ordinary condition, and by itself, to the extent of its course, from the point of said portage and connection with the Chicago River in Cook County, Illinois, to its mouth in Grundy County, Illinois, and then forward by uniting with the said Illinois River, a continued highway with water in sufficient volume and of sufficient depth to afford a channel for navigable and commercial purposes.

Wherefore and by reason whereof your orators charge the fact to be that the Desplaines River from near the City
115 of Chicago, in Cook County, Illinois, to the mouth of said river in Grundy County, Illinois, has been from the earliest knowledge of said river until the present time in law and in fact a navigable river, and that the several acts of the Legislature hereinbefore recited show the fact to be that it has been and is the policy of the State of Illinois to hold and maintain said Desplaines River to be a navigable river, and so being a navigable river both in law and in fact, said river is subjected to the provisions of the several acts of Congress hereinbefore set forth, and by reason whereof the said Desplaines River has been and still continues to be a highway of commerce, and as such is preserved for the use of the people of the State of Illinois, and the people of all the states of the United States as a public highway, and has not been alienated

from the rights of the people as a public highway, and that the People of the State of Illinois and of the United States have an easement over said river as a public highway for commerce, and that said river and the bed and waters thereof are permanently impressed and burdened with said easement and with a public right and public use of navigation. Defendant's Exhibit

V. Your orators furthr represent unto your Honors that by an Act of Congress of the United States, approved March 2, 1827, the Congress of the United States granted to the State of Illinois every alternate section in a strip of land ten miles wide along the line of the Illinois and Michigan Canal for the purpose of aiding the opening of a canal to connect the waters of the Illinois River with those of Lake Michigan, and that among the lands thus conveyed by the Congress of the United States to the State of Illinois, in Section number twenty-five (25), in Township number thirty-four (34) North, in 116 Range eight (8), East of the Third (3rd) Principal Meridian, in Grundy County, Illinois. That the Legislature of the State of Illinois, in the exercise of its power and control over said lands, last above described, and other lands received from the Congress of the United States, as above stated, by its certain Act entitled, "An Act to amend the several laws in relation to the Illinois and Michigan Canal," in force February 26, 1839, enacted the following provision, to wit:

"Section 2. Sub-Sec. 11. Lands situated upon streams which have been meandered by the surveys of public lands by the United States shall be considered as bounded by the lines of those surveys and not by the streams."

That the Desplaines River and the Kankakee River unite and form the Illinois River in the southeast quarter of said Section number twenty-five (25) in Township number thirty-four (34) North, in Range number eight (8), East of the Third (3rd) Principal Meridian, in Grundy County aforesaid, and that, by the survey of public lands by the United States said Desplaines River was meandered.

Your orators are informed and believe and upon such information and belief charge the fact to be, that the purchasers from the State of Illinois of lands in said Section twenty-five (25), above described, and other similarly situated lands with reference to the Desplaines River, did not take, and did not claim to take under their several purchases that portion of said lands lying between the meander line of the Desplaines River and the waters of said river; and that said lands between said meander line and the water of said Desplaines

River have never been used by any individual, under any claim of authority or right vested in said purchasers of said lands from the State of Illinois, save and except as
117 claimed by the defendant. Wherefore, and by reason whereof, your orators charge the fact to be that the lands lying between the meander line of the Desplaines River and the waters of said river, in the southeast quarter of said section number twenty-five (25), in Township number thirty-four (34) North, in Range number eight (8), East of the Third (3rd) Principal Meridian, in Grundy County, Illinois, together with the bed of the stream of the said Desplaines River, in said quarter section of land last described above, and other lands similarly situated with reference to the Desplaines River, have not passed by any purchase of adjoining lands from the State of Illinois, and that the same, and each and every part thereof, is owned by the State of Illinois, and held by said State for the use and benefit of the people of the State of Illinois, and of the People of the United States, as a public highway for commerce.

VI. Your orators further state unto your Honors that the Trustees of the Illinois and Michigan Canal executed and delivered to one Chas. E. Boyer, a deed bearing date as of the 22nd day of October, 1860, for certain tracts of land described therein as follows, to wit:

"The south fraction of the northwest quarter, and the north fraction of the southeast quarter, and the north fraction of the northwest quarter, and the south fraction of the southeast quarter of said Section 25, in Township 34 North, of Range 8, East of the Third Principal Meridian, excepting and reserving so much of said tract as is occupied by the
118 canal and its waters, and a strip 90 feet wide on either side of said canal, containing 196.62 acres, more or less, said tract being a portion of the land granted by the United States by the Act of March 21, 1827, and the 28th day of August, 1854, to the State of Illinois, to aid said State in opening a canal to connect the waters of the Illinois River with those of Lake Michigan, and by said State granted to the said Board of Trustees of the Illinois and Michigan Canal for the purposes set forth in said Act of said State of February 21, 1843."

And your orators further state unto your Honors that the legislature of the State of Illinois, by its certain Act approved and in force February 26, 1839, enacted as follows, to-wit:

"Sec. 2. Sub-Sec. 9. That no stream of water passing through canal lands shall pass by the sale so as to deprive

the State from the use of such water if necessary to supply the canal without charge for the same." Defendant's Exhibit

"Sec. 2, Sub-Sec. 11. Lands situated upon streams which have been meandered by the surveys of public lands by the United States shall be considered as bounded by the lines of those surveys and not by the streams."

Wherefore your orators charge that no part of the land in the northwest quarter and in the southeast quarter of said section number twenty-five (25), in Town thirty-four (34) North, in Range eight (8), east of the Third (3rd) Principal Meridian, lying and being situated outside of the meander line of the Desplaines River, were conveyed by said deed to the said Charles E. Boyer, and that the same remain the property of the State of Illinois.

And your orators further state that the claim of the defendant, the Economy Light and Power Company, to said portion of said premises so situated outside of the mean-
119 der lines of the Desplaines River, and in said Section number Twenty-five (25), is based upon mesne conveyances from the said Charles E. Boyer, and the several contracts and leases hereinafter set forth.

VII. That on March 2, 1827, the Congress of the United States passed a certain Act entitled

"An Act to grant a quantity of land to the State of Illinois for the purpose of aiding in opening a canal to connect the waters of the Illinois River with those of Lake Michigan," in which, among other things, it was provided as follows:

"That there be, and hereby is, granted to the State of Illinois, for the purpose of aiding the said State in opening a canal to unite the waters of the Illinois River with those of Lake Michigan, a quantity of land equal to one-half of five sections in width, on each side of said canal, and reserving each alternate section to the United States, to be selected by the Commissioner of the Land Office, under the direction of the President of the United States, from one end of said canal to the other; and the said lands shall be subject to the disposal of the legislature of the said State, for the purpose aforesaid, and no other."

That in and by said Act of March 2, 1827, said Congress granted, by implication, the right of way for the construction of said canal through the sections of public lands which were not donated to the State in aid of said canal; and that the said grant of right of way by implication extended to the land necessary to be used for the canal of the width contemplated.

That afterwards such proceedings were had, pursuant to

law and to said statute, that the route and location of said canal were duly surveyed and laid out, and the odd num-
120 bered sections of lands upon the survey of the same as Public Lands by the Surveyor General of the United States bordering said canal and within five miles on each side of said canal, commencing with Township number thirty-two (32) North of Range number one (1), East of the Third (3rd) Principal Meridian, were duly selected, by said Commissioner of the Land Office, under the direction of the President of the United States (except 21 exterior sections, not now involved), the said selections as confirmed included said Section 25, Township 34 North, Range 8, East of the Third Principal Meridian, and Sections 31, 29, 21, 15, 11, all in Township 34, North, Range 9, East of the Third Principal Meridian, and Sections 31, 29, 21, all in Township 35 North, Range 10, East of the Third Principal Meridian, and said Board of Commissioners of the Illinois and Michigan Canal laid out said canal, through said last named sections, and began the construction thereof, and provided for the reservation of a 90-foot strip of land on each side thereof for use as a tow path and as part of the canal throughout the length thereof.

That afterwards, in the years 1847 and 1848, Artemus J. Matthewson, a surveyor and engineer, under the authority and direction of the Canal Trustees herein elsewhere referred to, surveyed and marked the lines of a 90-foot strip on each side of the canal as finally located and constructed from one end thereof to the other, and prepared and filed in the
121 office of said Board of Trustees maps and profiles of said survey, and the said 90-foot strip so laid off and surveyed by said Matthewson on each side of the canal as aforesaid, was reserved from sale by the Canal Commissioners and Canal Trustees in sales of canal lands in said odd numbered sections, and title thereto remains in the State of Illinois; and said strip, together with the lands necessary for right of way through the alternate even numbered sections of land through which said canal was constructed, constitute integral parts of the said canal, and are necessary for its preservation and use, and are, by law, preserved and protected against alienation; and said 90-foot strip was so expressly reserved from sale in said deed by said Trustees of the Illinois and Michigan Canal to said Charles E. Boyer.

122 VIII. Your orators further represent unto your Honors that the Canal Commissioners of the State of Illinois entered into a certain contract, bearing date as of the 2nd day of September, 1904, with one Harold F. Griswold, and

which said contract, as your orators are informed and believe, and upon such information and belief charge the fact to be, was, by the said Harold F. Griswold, assigned, so that by mesne assignments the same was purported to pass to The Economy Light & Power Company, the defendant in this cause, a copy of which said contract is hereto attached and marked Exhibit A, and hereby made a part of this bill.

Defendant's Exhibit

And your orators further state unto your Honors that they are informed and believe, and upon such information and belief charge the fact to be that the said Canal Commissioners entered into a contract of lease with one Harold F. Griswold as of the date of the 2nd day of September, 1904, a copy of which said lease is hereto attached and marked Exhibit B, and hereby made a part of this bill; and which said lease was, as your orators are informed and believe, assigned by the said Harold F. Griswold, so that by mesne assignments the same was purported to pass, to The Economy Light & Power Company.

And your orators further inform the Court that they are informed and believe, and upon such information and belief charge the fact to be, that the Canal Commissioners entered into another certain contract with the said Harold F. Griswold as of the date of the 8th day of August, 1905, a copy of which said contract is hereto attached and marked Ex-
123 hibit C, and hereby made a part of this bill, and which said contract was, as your orators are informed and believe, assigned by the said Harold F. Griswold, so that by mesne assignments the same was purported to pass to The Economy Light & Power Company.

Your orators further state unto your Honors that the Canal Commissioners of the State of Illinois made an application to the Governor of the State of Illinois for his consent to the sale of certain lands, and which said application bears date as of the 11th day of June, 1904, a copy of which said application is hereto attached, marked Exhibit D, and hereby made a part hereof; and that a copy of the approval of said application for said sale by the Governor of the State of Illinois, as of the date of the 14th day of June, 1904, is hereto attached and marked Exhibit E, and hereby made a part of this bill.

And your orators further state unto your Honors that in pursuance of said application for sale, and the approval of said application by the Governor, as aforesaid, there was inserted in the Lockport Phoenix-Advertiser, a newspaper of general circulation, printed and published in the village of Lockport, in the County of Will, and State of Illinois, a cer-

tain notice of said proposed sale, a copy of which said notice, together with the certificate of publication thereof, is hereto attached and marked Exhibit F, and hereby made a part of this bill.

And your orators further state unto your Honors that
124 in and by said notice last above mentioned, the premises therein described were advertised to be sold on the 2nd day of August, 1904, at 10 o'clock in the morning for cash, at the Canal office in Lockport, Will County, in the State of Illinois; and your orators further state that no sale of said premises occurred on the 2nd day of August, 1904, in pursuance of said notice, but that the sale so advertised to be made was adjourned, and never thereafter resumed.

Your orators further represent unto your Honors that after the 2nd day of August, A. D. 1904, and under date of September 2, 1904, the Canal Commissioners of Illinois entered into the agreement and lease hereinbefore mentioned, and marked respectively Exhibits A and B, and that afterwards, and, to wit, under date of November 1, 1904, the Canal Commissioners of the State of Illinois made an application to the Governor of the State of Illinois for his consent to the sale of certain lands in said application described, a copy of which application is hereto attached and marked Exhibit G, and hereby made a part of this bill; and that the approval of said application for sale by the Governor of the State of Illinois was made in writing, a copy of which said approval, bearing date as of the 2nd day of November, 1904, is hereto attached and marked Exhibit H, and hereby made a part of this bill. That in pursuance of said application and approval a notice of sale was inserted in the Lockport Phoenix-Advertiser,
125 a weekly newspaper of general circulation, a copy of which said motion, together with the certificate of publication thereof, is hereto attached and marked Exhibit I, and hereby made a part of this bill.

And your orators further state that in pursuance of said application last above mentioned for the sale of certain lands, and the approval of the Governor thereof, and of the advertisement in the Lockport Phoenix-Advertiser last above mentioned, the said Canal Commissioners, as your orators are informed and believe, and upon such information and belief charge the fact to be, sold, and executed a certain deed to Harold F. Griswold as of the date of the 6th day of January, 1905, a copy of which said deed is hereto attached and marked Exhibit J, and hereby made a part of this bill; and, as your orators are informed and believe, the said Harold F. Griswold

conveyed said premises, so that by mesne conveyances the same were purported to pass to The Economy Light & Power Company, the defendant in this cause. Defendant Exhibit

Your orators further state unto your Honors that they are informed and believe, and upon such information charge the fact to be that the said Canal Commissioners entered into a contract of lease with Harold F. Griswold as of the date of September 2nd, 1904, a copy of which said lease is hereto attached and marked Exhibit K, and hereby made a part of this bill, and which said lease, as your orators are informed and believe, was assigned by the said Griswold, so that by mesne assignments the same were purported to pass to The Economy Light & Power Company, the defendant herein.

And so it is, as your orators are informed and believe, 126 and upon such information and belief charge the fact to be, that the said Economy Light & Power Company, claiming to act by pretended right, authority and virtue of the several deeds, leases and contracts hereinbefore mentioned, claims the right to construct a dam across the Desplaines River and across certain lands adjacent thereto, and across the 90-foot strip of land so used for canal purposes, and immediately adjoining the waterway of the said Illinois and Michigan Canal, and upon the bank or tow path of the said Illinois and Michigan Canal, and so to construct said dam as to flood the lands along the Desplaines River for a distance of several miles, to wit, the distance of ten miles, or thereabouts, above the location of said proposed dam, and which said location of said proposed dam is on the southeast quarter of Section No. 25 in Township No. 34 North, in Range No. 8 East of the Third Principal Meridian, in Grundy County, Illinois, and that in pursuance of said claim of right on its part said Economy Light and Power Company has commenced the construction of a dam across said Desplaines River and across the lands as hereinbefore set forth, but your orators aver that the said several leases, deeds and contracts are ineffectual to confer any right to build or maintain said dam.

Your orators further state unto your Honors that the General Assembly of the State of Illinois has, by its proper resolution, duly passed by the Senate and concurred in by the House of Representatives of said General Assembly on, to wit, the 16th day of October, 1907, a copy of which is hereto attached, marked Exhibit L, and made a part hereof, proposed the building of a deep waterway, commencing at the southern end of the Chicago Drainage Canal and extending

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2. southwesterly along the line of the Desplaines and Illi-
127 nois rivers, in accordance with plans and specifications formulated by the corps of engineers of the United States Army, under and by direction of a certain Act of the Congress of the United States; and that the proposition so proposed by the legislature of the State of Illinois has been authorized by the said legislature of Illinois to be submitted to a vote of the people of the State of Illinois, authorizing the construction of said deep waterway, and if the same is built, as an incident thereto, locks and dams, with special provisions for navigation, and securing and safe guarding the passage of boats, will necessarily be constructed across said deep waterways in the channel of the Desplaines River at or near the said southeast quarter of Section number 25, in township number 34 north, in range number 8 east of the Third Principal Meridian in Grundy County, Illinois, which said dam will incidentally afford water power of great value, to wit of the value of several millions of dollars to the State of Illinois, and which said water power, so necessarily incidentally created, will be lost to the State of Illinois if the said Economy Light and Power Company, the defendant herein, shall be permitted to construct the dam herein mentioned.

And your orators deny the right and authority of the Trustees of the Illinois and Michigan Canal, or of the Canal Commissioners of the State of Illinois, to convey the lands com-
128 posing the bed of the stream of the Desplaines River, or any part or portion of the lands of said section number 25 last above described, outside of the meander line of the Desplaines River.

And your orators further charge that the ninety foot strip of land along the line of the Illinois and Michigan Canal is necessary for the proper maintenance and use of the Illinois and Michigan Canal and constitutes a necessary integral part of said canal, and being so necessary for the use of the said Illinois and Michigan Canal and its maintenance, and being so an integral part of the said canal, the Trustees of the Illinois and Michigan Canal did not have, and the Canal Commissioners of the State of Illinois had not and does not now have, the right and authority under the law, to convey the same by deed, lease or otherwise. Wherefore, and by reason whereof your orators charge the fact to be that the Economy Light and Power Company, the defendant herein, has not acquired any right, title or interest in and to the bed of the stream of the Desplaines River, or that portion of said Section 25 last above described lying and being outside of the

meander line of the said Des Plaines River, or in and to the 90 foot strip of land lying between the waters of the Illinois and Michigan Canal and the said Desplaines River, and said deeds, leases, contracts and other agreements, in so far as they pertain to the bed of the stream of the Desplaines River, and to the lands lying outside of the meander line, and to
129 the 90 foot strip of land so reserved for the use of the Illinois and Michigan Canal, and so located in the southeast quarter of Section number 25 last above described, are void and of no effect. Defendant's Exhibit

And your orators charge the fact to be that by virtue of the several enactments of the Congress of the United States as hereinbefore set forth, and of the several acts of the Legislature of the State of Illinois as hereinbefore set forth, the bed of the Des Plaines River is owned by the State of Illinois, and that the same has not been conveyed by any deed to anybody whomsoever, and that the lands on said Section No. 25 last above described, and other sections of land along the line of the Des Plaines River, so granted to the State of Illinois by the act of Congress hereinbefore referred to, outside of the meandered line of said stream, to wit, the Des Plaines River, have not been conveyed by the State of Illinois nor by any other person or persons or corporation whomsoever having authority so to convey the same, and that the same remain and are owned by the State of Illinois.

IX. Your orators further state unto your Honors that notwithstanding the rights and interests of the people of the State of Illinois, as hereinbefore set forth, the Economy Light & Power Company, a corporation, claims or pretends to claim to be the owner of the bed of the stream of the Desplaines River and other lands in said southeast quarter of said Section number 25 above mentioned, and other lands for a
130 distance of several miles up the Desplaines River, which are outside of the meander line of the said Desplaines River, and so pretending and claiming to be the owner of said premises has threatened to erect, and has actually begun the erection of a dam across the Desplaines River, and across the 90-foot strip of land so reserved for the use of the Illinois & Michigan Canal, and across other lands outside of the meander line of the Desplaines River, and to connect said dam with the bank or tow path of the Illinois and Michigan Canal, and to so construct said dam as to cause the water to be backed up and to overflow the lands belonging to the State of Illinois, and other lands for a long distance above said pro-

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posed dam, to wit, for the distance of ten miles, or thereabouts.

That your Attorney General heretofore, on the 12th day of December, A. D. 1907, caused to be served on said defendant, The Economy Light and Power Company, a certain notice and command in writing, notifying and commanding the said defendant, its officers, agents, servants and representatives, to cease and desist from in any manner infringing upon, trespassing upon or interfering with the said lands owned by the State of Illinois, or in which the State of Illinois or the People of the State of Illinois have an easement for the benefit of the public, located in said Section 25 in Grundy County, Illinois, by the erection of a dam thereon, or otherwise, and to cease and desist from in any way obstructing the Des-
131 plaines River or the Illinois River in said Section or elsewhere, and further notifying and commanding said defendant to remove any and all obstructions that it may have placed upon said premises, whether the same be in the bed of the Desplaines River or otherwise located; which notice and command in writing was served upon said defendant company by personal delivery of the same to John F. Gilchrist, Secretary of said defendant Company, who, on behalf of said defendant company then and there acknowledged service and receipt of the same; a copy of which notice and command, with said written receipt of service, as signed by said secretary, appended, is hereto attached and marked Exhibit M. But now so it is, may it please your Honors, that said defendant has ignored said notice and command and disregarded the same, and since the service and receipt thereof has continued and persisted in the work of constructing said dam at said place in the bed of said river, and has employed about one hundred men, with horses, wagons and machinery in so doing, and unless prevented by the injunction of this Honorable Court, will soon complete the same to the great impairment of said easement of navigation and to the great and irreparable injury of the people of the State of Illinois.

That if the said dam is permitted to be erected by the defendant, it will destroy and interfere with the Desplaines River as a navigable waterway for the use of the People of the State of Illinois, and for all the People of the United
132 States; that it will overflow and destroy the value of the lands and the use of lands belonging to the State of Illinois adjacent to said Desplaines River, and outside of the meander line of said river; that it will destroy the use of the 90-foot strip of land so to be retained for the use and benefit

Defendant's Exhibit 2

of the Illinois and Michigan Canal, and render the same inoperative and of purpresture impaired benefit to said canal; that it will destroy a feeder of the Illinois and Michigan Canal and will constitute a purpresture and that the same will produce and work irreparable loss and damage to the Illinois and Michigan Canal, and to the State of Illinois, and to the rights of the people of the State of Illinois.

133 X. Your orators further show that said agreement Exhibit A, purports to give authority and consent by the Canal Commissioners unto the said Griswold and his assigns, to dam the Desplaines River, to back up water upon a ninety-foot strip and cause the same to be flooded, to excavate in and remove portions of said Kankakee feeder therein mentioned and of the structures therefor, to attach the said proposed dam to the tow path of the canal, to divert water from the Desplaines River, to attach and close up a levee to and along the tow path bank of the said canal, to use the gravel and material the property of the state, to enter upon the canal lands and the canal itself in and about said works, and to raise, change and alter buildings owned by the state and used in connection with said canal; as to each and every of which provisions the same were beyond the power of said Commissioners to grant.

That said consent and permission, purported to be conferred by said instrument, was without limit of time, and of right should be held, in law and in equity, to be without any authority, and to confer no authority, and be against the public policy of the state and in derrogation of the rights and interests of the people, and to be revocable by the state.

The said lease, Exhibit B, purported to convey and demise interests in the said ninety-foot strip within the area described in said lease, to which reference is here made, in that part of the canal called the Kankakee feeder, and pur-

134 ported to give a first right of renewal to the party of the second part therein named, and purported to be made subject to said contract Exhibit A. That each of said instruments purported to contract, on the part of said Canal Commissioners, with said Griswold, his successors and assigns, and by their terms might be assigned, one to one assignee and the other to another and different assignee.

That said contracts were entered into by the parties thereto with the mutual knowledge and understanding that the party of the second part and his assignee thereof intended to make use of the same in erecting said dam and developing water power thereon, and that the same amount to a lease of water

power rights and lands and lots connected therewith. That the said lease and contrast were not nor were either of them entered into upon notice by publication, nor limited to a period of ten years, contrary to the provision of a certain act entitled, "An Act to revise the law in relation to the Illinois and Michigan Canal, and for the improvement of the Illinois and Little Wabash Rivers," approved March 27th, 1874, and acts amendatory thereof, and, in particular, to the provisions of Clause 6 of Section 8 of said statute as amended by the certain act amendatory thereof, approved June 19th, 1891, in force July 1st, 1891; and your orators charge that the same are beyond the power of said Commissioners to enter into, and are null and void.

Your orators further show that treating said instru-
135 ments as leases of water power they are subject to the power of the state, by its lawfully authorized agents, to resume, without compensation to the party of the second part therein named, his successors or assigns, the use of such water power, and are further subject to the power of the state to abandon or destroy the work by the construction of which the water privilege therein purported to be conferred shall have been created, whenever, in the opinion of the Legislature, such work shall cease to be advantageous to the state,—all in accordance with the provisions of said Clause 6 of said Section 8 of said Act approved March 27th, 1874, as amended by said Act approved June 19th, 1891.

Your orators further show that the opinion of the Legislature that such work has ceased to be advantageous to the state was duly expressed by the said statute heretofore cited, approved and in force December 6th, 1907, entitled "An Act recognizing the Desplaines and Illinois Rivers as navigable streams, and to prevent obstructions being placed therein, and remove obstructions therein now existing."

That said contract, Exhibit C, purports to leave to the said Griswold, and his successors and assigns, such right as is now, at the date thereof, under the control of the Canal Commissioners, to divert the waters of the Kankakee River into the Kankakee Feeder, and discharge the same into the Des-
plaines River, and to destroy and reconstruct the dam
136 across the Kankakee River, and to construct at each end of said Kankakee feeder suitable gates for controlling the discharge of the Kankakee River through said feeder, and to enter upon the Kankakee feeder for the purposes therein named.

But your orators show that the said contract was a further

lease for the purpose of enabling the assignee therein to develop and create water power, and was not made in conformity to the provisions of the statute last cited in reference to the Illinois and Michigan Canal; and further show that said Kankakee feeder was an integral part of said canal, and that said agreement was beyond the power of said Commissioners to make. Defendant's Exhibit 2.

But your orators further show that said lease, Exhibit C, contained the following provision, to wit:

"It is herein further stipulated and agreed, and the Canal Commissioners hereby expressly reserve the right to cancel this lease and recover possession of the land, property and rights above demised and referred to, whenever in the judgment of the Canal Commissioners, or other proper officers of the state, at such time having charge of Canal property, they shall deem the interests of the state require it to repossess and use said property for state purposes."

And your orators show that said power of revocation and cancellation may be exercised by the Legislature of the state and that the same was exercised by the Legislature of the state by the enactment of the statute hereinbefore mentioned, which was approved and in force December 6th, 1907, entitled "An Act recognizing the Desplaines and Illinois rivers as navi-
137 gable streams, and to prevent obstructions being placed therein, and remove obstructions therein now existing." And your orators show that the exercise of the powers and privileges and rights purported to be conferred by said lease, Exhibit C, will constitute and create obstructions of the Desplaines River.

That said Deed Exhibit J purports to convey the lands therein described, and in terms to include lands lying and being situated outside of the meander line of the Desplaines River, and purports to be subject to the terms of said flowage contract Exhibit A, and said lease Exhibit B, and to renew the covenants thereof by the certain provision in said deed referring thereto, which recites that the said deed is "subject, however, to the terms, conditions and provisions of the flowage contract and lease made with said Harold F. Griswold, and bearing date September 2, A. D. 1904, which terms, conditions and provisions still remain in full force, and shall be fully kept and performed."

And your orators show that the said lands and lots described in said deed are lands and lots connected with the water power privileges sought and purported to be conferred and created by said contract Exhibit A, and said lease Ex-

hibit B, and that said advertisement thereof did not so designate and describe said properties, and did not limit the same to the term of ten years prescribed by law, and the same are beyond the power of the said Commissioners and are null
138 and void, and are subject to the power in the state to resume the same and to abandon and destroy the work by the construction of which water privileges shall have been created, whenever in the opinion of the Legislature such work shall cease to be advantageous to the state;—and your orators show that the opinion of the Legislature that the same ceased to be advantageous to the state was duly expressed by the said statute approved and in force December 6th, 1907, entitled, "An Act recognizing the Desplaines and Illinois Rivers as navigable streams, and to prevent obstructions being placed therein, and remove obstructions therein now existing."

Your orators further show that said Pole lease, Exhibit K. purported to convey to said Griswold, his successors and assigns, the right to maintain a line of poles along said Canal from the west line of said Section 25, upon which said dam has been located, to Robey street in the city of Joliet, and from the same point in said Section 25 to the west limits of the City of Morris in Grundy County.

And your orators show that the said lease was made upon the same day as said contract and lease Exhibit A and Exhibit B, and was also for the purpose of developing the said water power and transferring and conveying the same as electrical energy by said proposed line of poles, and was subject to all the infirmities heretofore specifically alleged as to said contract and lease Exhibit A and Exhibit B.

And your orators further show that said contracts, deeds and leases were and each of them was entered into on inadequate consideration.

139 Forasmuch therefore, as your orators is without remedy in the premises, except in a court of equity, and to the end that the said Economy Light & Power Company, the defendant in this bill, may be required to make full and direct answer to the same, but not under oath, the answer under oath being hereby waived, and that the said deeds, leases and contracts hereinbefore mentioned and each of them may be set aside and be declared to be beyond the power of the said Canal Commissioners and null and void as to each and every part and in particular as to the bed of the Desplaines River, and as to the 90-foot strip of land hereinbefore described, and as to the lands lying and being situate outside of the

Defendant's Exhibit 2.

meander line of the Desplaines River, and as to the said part of the canal designated as the Kankakee feeder, and that the said Economy Light & Power Company, its officers, agents and servants, and each and all and every of them, shall be restrained by the order and injunction of this Honorable Court from erecting a dam across said Desplaines River and across the premises hereinbefore mentioned, and from causing the waters of the Desplaines River to back up and overflow the lands of the State of Illinois, and to refrain from permitting the obstruction already placed in said Desplaines River to be made and remade therein, and that your orator may have such other and further relief in the premises as equity may require and to your Honors shall seem meet.

May it please your Honor to grant unto your orator the people's writ of injunction to be directed to the Economy
140 Light & Power Company, restraining it and its officers, agents and servants, from erecting a dam across the Desplaines River and across the 90-foot strip of land adjoining the water course of the Illinois and Michigan Canal on the site thereof next to the Desplaines River, and across the lands outside of the meander line of the Desplaines River, and from causing the water of the Desplaines River to be backed up and to overflow the lands belonging to the State of Illinois, and from permitting the obstructions already placed in said Desplaines River and on said 90-foot strip of land and on said lands outside of the meander line of the Desplaines River by the Economy Light and Power Company, all located in and on the southeast quarter of Section No. 25 in Township No. 34 north, in Range No. 8 east of the Third Principal Meridian, in Grundy County, Illinois, to remain therein and thereon, until the further order of this court.

May it please your Honor to grant the writ of summons in chancery directed to the Sheriff of the County of Cook, commanding him that he summon the Economy Light & Power Company to appear before the said court on the first day of the next March Term thereof to be held at the court house in the City of Morris, in the County of Grundy aforesaid, and then and there to answer this bill.

W. H. Stead,
Attorney General.

Walter Reeves,
Merritt Starr,
Special Counsel.

141 County of Cook. } ss.
State of Illinois, }

Lyman E. Cooley, being first duly sworn on his oath deposes and says that he is duly authorized by the Attorney of the State of Illinois to make affidavit in this behalf; that he has heard read the foregoing bill and knows the contents thereof, and that the matters and things therein stated are true of his own knowledge except in so far as they are stated to be upon information and belief, and as to those matters he believes it to be true.

LYMAN E. COOLEY.

Subscribed and sworn to before me this 28th day of December, A. D. 1907.

(Signed) ARTHUR A. BLISS
Notary Public.

(Arthur A. Bliss
Notarial Seal
Cook County Ill)

Copy. Let an injunction issue according to the prayer of the bill with permission to the defendant to protect the works and machinery now on the grounds without however extending or increasing the work already done, without bond.

December 30, 1907.

S. C. STOUGH
Judge.

142 EXHIBIT A.

This Agreement, made and entered into this 2nd day of September, A. D. 1904, by and between The Canal Commissioners of the State of Illinois, party of the first part, and Harold F. Griswold, of the City of Evanston, County of Cook and State of Illinois, his successors and assigns, party of the second part, Witnesseth:

Whereas, said party of the second part claims to be a riparian owner along certain streams of water called the Desplaines River and Illinois River, in the Counties of Grundy and Will, in the State of Illinois, and as such riparian owner is about to improve said Desplaines River by the construction of a dam and other works across the mouth of said river in the County of Grundy and State of Illinois, with a crest of such height that the pool formed thereby will be on a level with the waters of Lake Joliet (a portion of said Desplaines River

in Will County, Illinois) and is about to improve said Illinois River by deepening the channel of said river in Section Twenty-five (25), Township Thirty-four (34) North, Range VIII East of the Third P. M., and

Whereas, the State of Illinois is a riparian owner at different points on the Desplaines and Illinois Rivers within the territory covered by this contract, as well as the owner of the hereinafter described parcels of land, under the control of The Canal Commissioners, and which are not connected with water power upon the Illinois and Michigan Canal,
143 which said rapirian rights and said land have never produced a revenue, and said land is now unproductive of revenue, swamp, unfit for cultivation, and partially covered with water, and said lands are so situated that the riparian rights appurtenant thereto cannot be made available by the State to create water power, and

Whereas, said party of the second part is desirous of obtaining the right to use, overflow and damage (in such manner as will not interfere with navigation on the Illinois and Michigan Canal), so much of the said property as may be necessary in the construction of said dam and other works in the improvement of said Desplaines River and in the deepening of the channel of said Illinois River,

Therefore, in consideration of the premises and the sum of Two Thousand Two Hundred Dollars in hand paid by the said party of the second part, the receipt whereof is hereby acknowledged, it is agered as follows:

1st. That said party of the first part consents that said party of the second part shall have the right and authority in so improving the Desplaines River, to construct a dam and other works across the Desplaines or Illinois River at a point near the confluence of the Desplaines and Kankakee Rivers, in the County of Grundy and State of Illinois, with a crest at an elevation of not to exceed minus seventy-three and two-tenths (73.2) Chicago city datum, but in no event
144 shall the back water caused by said dam extend beyond the northerly limits of "Lake Joliet" (said "Lake Joliet" being a wide portion of the Desplaines River about six miles in length and lying south of the City of Joliet in the County of Will and State of Illinois) and further consents that said party of the second part may excavate in and deepen the channel of the Illinois River in Section 25, Township 34 North, Range VIII East of the 3rd P. M.

2nd. That said party of the second part shall have the right and authority to flow the ninety-foot reserve strip of

the Illinois and Michigan Canal in Sections 25 and 26, Township 34, North, Range VIII, Grundy County, Illinois, and in Sections 31, 30, 29 and 20, Township 34 North, Range IX, Will County, Illinois, up to the canal bank; also so much of the north fraction of Section 31, Township 34 North, Range IX East of the 3rd P. M. as lies south of the ninety-foot reserve strip along the towpath side of the Illinois and Michigan Canal, where the same may be overflowed by reason of the construction of said dam and other works with the crest hereinbefore specified, together with the right to flow the water up against the towpath bank of the Illinois and Michigan Canal in said sections Provided the towpath shall be protected and preserved as hereinafter provided.

3rd. That said party of the second part shall have the right to excavate in, and remove so much of the Kankakee Feeder (an abandoned feed of the Illinois and Michigan Canal) lying north of the Desplaines River, and south of the ninety-foot strip in Section 21, Township 34 North, Range IX, Will County, Illinois, as may be necessary to discharge the waters of the Desplaines River through said Section 31 in a proper manner, and shall also have the privilege of removing the old acqueduct piers in said section.

4th. That said party of the second part shall have the right to erect, attach, repair and maintain, said dam and other works or structure upon against the towpath bank of the Illinois and Michigan Canal in Section 25, Township 34 North, Range VIII East of the 3rd P. M., Grundy County, Illinois, but not so as to interfere in any manner with the use of said towpath in connection with said canal.

5th. That said party of the second part shall have the right to turn and divert from the Desplaines River into the Kankakee River a certain stream of water called the "Kankakee Cutoff", through, over and across said Kankakee Feeder and the ninety-foot strip on each side of said feeder in Section 5, Township 33, North, Range IX East of the 3rd P. M., and said party of the second part is granted the right to construct on the banks of said feeder controlling gates for flood protection from said Kankakee River.

6th. It shall be the duty of said party of the second part, subject to the direction of The Canal Commissioners, or other officers or agent as hereinafter indicated, to raise the towpath or bank of the Illinois and Michigan Canal from its present height not less than two feet and to any additional height that may be necessary to prevent overflow and to perpetually thereafter maintain the same in good condi-

tion. The raising of said towpath shall extend from the point in said Grundy County where the dam or other structure of said party of the second part intercept said towpath bank to lock Number Seven in Section 17, Township 34 North, Range IX East of the 3rd P. M., and when raised the width of the top of the towpath bank shall, conform to the width of the towpath as it exists at the present time.

Exhibit A
Defendant's
Exhibit 2

7th. Permission and authority is hereby given said party of the second part to attach and close a levee to the towpath bank of the Illinois and Michigan Canal at the point in said towpath bank where the east and west half section line of Section 20, Township 34 North, Range IX East of the 3rd P. M., intercepts said towpath bank; and further permission is also given to construct levees on the east and west banks of the DuPage River from the dam across said river to the north line of Section 20, Township 34 North, Range IX East of the 3rd P. M., and attach and close said levees to the west and east sides respectively of said dam across the DuPage River in Section 17, Township 34 North, Range IX East of the 3rd P. M., as indicated more clearly by the blue print
147 hereto attached and made a part of this contract as "Exhibit A."

8th. Permission is hereby given said party of the second part to use so much of the gravel or other material lying along said Illinois and Michigan Canal, the property of the State of Illinois, as may be necessary to raise said towpath bank of said Illinois and Michigan Canal. Such material, however, to be taken out from places indicated or approved by the General Superintendent of the Canal, or other officer or agent designated by the Canal Commissioners or other officers in charge.

9th. That the said party of the second part is hereby authorized to enter upon the lands or premises of the State of Illinois, part and parcel of the Illinois and Michigan Canal and to enter upon said canal itself in a manner and to the extent that shall be necessary to raise and maintain the towpath as above provided, and to attach and build said dam or other works onto said towpath bank as herein provided, and to repair, maintain or renew the same as shall become necessary to the preservation thereof.

10th. It is herein further stipulated and agreed by and between the said parties hereto that said party of the second part shall raise the building owned by the State of Illinois in Section 31, Township 34 North, Range IX East of the 3rd P. M., and used in connection with the Illinois and Michigan

Canal, to a level with the towpath of said canal when the
148 same is raised, as provided in Paragraph 6 hereof. Said party of the second part will also provide two acres of land to be used by said party of the first part in connection with said buildings as a garden. The raising of said buildings and the providing of said land shall be to the satisfaction of the General Superintendent or other officer or agent in charge of said canal.

11th. It is herein further stipulated and agreed by and between the parties hereto that all work hereinbefore provided for, or which shall affect the canal property or interests, shall be done under the supervision of, and to the satisfaction of The Canal Commissioners or their duly authorized agent or agents, and not otherwise; and such work when so completed shall at all times be kept and maintained by said party of the second part under the like supervision and to the approval of said The Canal Commissioners, or their officers or agent duly authorized to represent them.

12th. It is herein further stipulated and agreed by and between the parties hereto that the cost of inspecting the work herein provided for to be inspected by said party of the first part shall be paid by said party of the second part.

13th. It is herein further stipulated and agreed by and between the parties hereto that said party of the second part shall be responsible for and pay any and all damages that may be sustained by the State of Illinois, or The Canal
149 Commissioners, or the Canal property, or the persons or property using said Illinois and Michigan Canal, or that shall be occasioned by the construction of the works hereinbefore contemplated to be done or made by said party of the second part, or in the subsequent repair or maintenance thereof, or which shall be occasioned by the use of the dam, levees, or other works above provided for.

This Agreement shall be binding upon and inure to the benefit of the respective successors and assigns of the parties hereto.

In Witness Whereof, the said party of the first part has caused these presents to be signed by its president, and its corporate seal to be hereto affixed and duly attested, and said party of the second part has hereunto set his hand and seal the day and year first above written.

THE CANAL COMMISSIONERS,
C. E. SNIVELY,
President.

Attest:
W. R. NEWTON,
Secretary.

HAROLD F. GRISWOLD. (Seal)

150 EXHIBIT B.

Exhibit B. Defendant's Exhibit 2.

This Indenture, made this 2nd day of September, A. D. 1904, between The Canal Commissioners of the State of Illinois, party of the first part, and Harold F. Griswold, of the City of Evanston, County of Cook and State of Illinois, his successors and assigns, party of the second part, Witnesseth:

That the said party of the first part, in consideration of the covenants of the said party of the second part, hereinafter set forth, doth by these presents lease to the said party of the second part the following described property, towit:

The ninety foot strip along the towpath side and outside of the towpath of the Illinois and Michigan Canal in Sections 25 and 36, Township 34 North, Range VIII East of the 3rd P. M., Grundy County, Illinois, and said ninety foot strip in Sections 31, 30, 29 and 20, Township 34 North, Range IX East of the 3rd P. M., Will County, Illinois. Also that part of the North half of Section 31, lying south of the ninety-foot reserve strip along the towpath side of said canal. Also that part of the Kankakee Feeder and the 90-foot strip on each side of said Feeder in Section 31, Township 34 North North, Range IX East of the 3rd P. M. and in Section V, Township 33 North, Range IX East of the 3rd P. M., Will County, Illinois.

To Have and to Hold the same to the said party of the second part from the 2nd day of September A. D., 1904, to the second day of September, A. D. 1924, subject to a con-
151 tract dated the 2nd day of September A. D., 1904, to said Harold F. Griswold, affecting said premises.

And the said party of the second part, in consideration of the leasing the premises as above set forth, covenants and agrees with the party of the first part to pay the said party of the first part as rent for the same the sum of $500.00 in full for the term of this lease, the receipt of which $500.00 is hereby acknowledged.

And it is further covenanted and agreed between the parties aforesaid that said party of the second part is hereby charged with knowledge of all of the provisions contained in said contract with Harold F. Griswold, in so far as they affect the premises hereby leased.

It is further understood and agreed by and between the parties hereto that in case said party of the first part shall determine to re-lease the land hereby demised at the expiration of this lease that then and in such event the said party of the

second part shall have the first right to re-lease the same by paying therefor as much as shall be offered by any other person or party therefor, provided, however, that such rental may at the option of said party of the first part be ascertained, determined and fixed by three appraisers, one to be chosen by each of the parties hereto and the third by the two thus chosen, but in no event shall the rent be less than the amount fixed in this lease; and said party of the second
152 part hereby covenants and agrees that he will, and he hereby offers to pay the same rental as herein agreed to be paid for another term of twenty years, to begin at the expiration of the term hereby granted.

It is further understood and agreed that in case said party of the second part shall desire to re-rent said property for a further term of twenty years at a rental to be agreed upon by the parties hereto or fixed by appraisers as aforesaid, he shall notify said party of the first part in writing of such desire at least one year before the expiration of the term hereby demised.

The covenants herein shall extend to and be binding upon the heirs, executors, administrators, successors and assigns of the parties to this lease.

In Witness Whereof, the party of the first part has caused this instrument to be signed by its President and attested by its Secretary, and duly authorized its corporate seal to be hereunto attached, and said party of the second part has hereunto set his hand and seal the day and year first above written.

THE CANAL COMMISSIONERS
By C. E. SNIVELY,
President.

Attest:
W. R. NEWTON,
Secretary.

HAROLD F. GRISWOLD, (Seal)

153 EXHIBIT C.

This Indenture, made this 8th day of August, A. D., 1905, between The Canal Commissioners of the State of Illinois, party of the First part, and Harold F. Griswold, of the City of Evanston, County of Cook and State of Illinois, his successors and assigns, party of the second part, Witnesseth:

Whereas, said party of the second part, has made applica-

Exhibit C
Defenda
Exhibit

tion to The Canal Commissioners of the State of Illinois to lease the right of the State to divert the waters of the Kankakee River into the Kankakee Feeder and discharge the same into the Desplaines River, in Section 31, Township 34, North, Range 9, East of the Third Principal Meridian; and also the right of the State to reconstruct the dam, the property of the State of Illinois, across the Kankakee River, in Section 9, Township 33, North Range 9, east of the Third Principal Meridian, and the right of the State to repair the bank of the said Kankakee Feeder and to construct at each end of said Feeder suitable gates for controlling the discharge of said waters through said Feeder; and

Whereas, The Atchison, Topeka & Santa Fe Railway Co., and the Chicago & Alton Railway Co., have made separate fills or embankments across said Feeder in Section 9, Township 33 North, Range 9 East of the Third Principal Meridian, with permission of The Canal Commissioners, and are now using the same as a part of their respective road-beds across said feeder;

Therefore, in consideration of the premises and the
154 covenants and agreements of said party of the second part, hereinafter following, the application of said party of the second part is hereby granted, and the said party of the first part, by these presents, doth lease to said party of the second part the rights of the State now within the control of The Canal Commissioners, to-wit: such right as is now under the control of The Canal Commissioners to divert the waters of the Kankakee River into the Kankakee Feeder and discharge the same into the Desplaines River, in Section 31, Township 34 North Range 9 East of the Third Principal Meridian, together with such right of the State as is now under the control of The Canal Commissioners to restore and reconstruct the dam across the Kankakee River, in Section 9, Township 33 North Range 9 East of the 3rd Principal Meridian, but in such restoration the crest of such dam shall not be higher than it has heretofore been; also such right of the State as is within the control of The Canal Commissioners to construct at each end of said Kankakee Feeder suitable gates for controlling the discharge of the waters of said Kankakee River through said Feeder; and such right as The Canal Commissioners now have to enter upon the Kankakee Feeder and the dam in connection therewith, for the purpose of repairing the banks of said Feeder or repairing the dam across said Kankakee River or the gates at each end of said Feeder; to have and to hold the same for the full period

155 of twenty (20) years from the date hereof, subject however to whatever legal rights said railway companies respectively have to cross said Feeder upon such embankments and otherwise, also subject to the provisions of certain leases heretofore made to Harold F. Griswold of the City of Evanston, and Charles A. Munroe, of the City of Chicago, both of the County of Cook and State of Illinois.

And the said party of the second part further agrees to pay to the said party of the first part, as the consideration for the rights hereinabove described, the sum of one hundred and fifty dollars ($150.00) per year for each and every year of the term hereby demised, payable on the 10th day of August A. D., 1905, and on the 10th day of August in each and every year of said term hereby demised.

And it is further provided that said party of the second part shall have the right to cancel this lease at any time at his option after five (5) years from the date hereof.

It is herein further stipulated and agreed by and between the said lessor and lessee as a part of the consideration of this lease, that at the expiration of this lease, or in case of the earlier termination thereof under its provisions, or in accordance with the law, that said lessee, the party of the second part, shall restore the said dam, and feeder, to its present condition, and restore the flowage of all water to its present channel at his own and sole expense, unless he shall be
156 directed not to do so by written notice from said party of the first part or other officers or officer at such time having charge of said Illinois and Michigan Canal; and in case of failure on the part of said lessee so to do, the said party of the first part, or other officers or officer, in charge of said canal, shall have the right to so restore said dam, feeder and water to its present condition at the expense of said party of the second part; and said party of the second part, for himself, his heirs, executors, administrators and assigns, hereby covenants and agrees to and with said party of the first part and the officer or officers at such time in charge of said canal, and the State of Illinois, that he will refund and pay to them or it the full cost of the restoration of such dam, feeder and water to its present condition and place, within thirty (30) days after he or they shall be presented with a statement of such cost and expense.

It is herein further expressly stipulated and agreed by and between the parties hereto, and said party of the second part hereby, for himself, his heirs, executors, administrators and assigns, covenants and agrees to and with said party of the

first part, the officer or officers in charge of the Illinois and Michigan Canal, and the State of Illinois, that he, and they, will fully and completely protect, save and keep harmless, the said party of the first part, such officer or officers, and said State of Illinois, from any and all damages and
157 claim for damages which may be made against such officers or said State by reason of, or growing out of any work which said party of the second part, his heirs, executors, administrators or assigns shall or may do, or shall attempt to do under and by virtue of this instrument or any of the rights granted or attempted to be granted hereby, whether by the flowage of land, back water, change of present channel or flowage of water or otherwise, whether of the kind or character herein enumerated or different or otherwise, including any and all costs, expenses and attorneys fees which shall or may grow out of, or be incurred in connection with any and all such claims made or asserted, or suits brought in reference thereto; and said party of the second part, his heirs, executors, administrators and assigns, likewise, as further and additional security and protection against loss or claims, further covenants and agrees that, he and they, will, before any work shall be commenced under this contract, duly execute, acknowledge and deliver to said party of the first part a bond of indemnity in such form and for such an amount as they, the said party of the first part, shall determine and specify and shall be adequate to fully and completely protect said party of the first part, said officer or officers and said State of Illinois against any and all damages, loss, cost, expense and attorney's fees which shall be made, claimed, or be incurred or grow out of any and all things done or at-
158 tempted to be done by said party of the second part, his heirs, executors, administrators or assigns, under or by virtue of this instrument; and in case said party of the second part, his heirs, executors, administrators or assigns, or any of them, shall fail or refuse to duly execute and deliver such bond, within thirty (30) days after written request therefor shall be served upon him or any of them, then, and in such event, all rights granted under this instrument shall at once cease and determine and shall at once revert to and revest in said party of the first part and the State of Illinois.

It is herein further provided that this lease may be extended for a further period of twenty years at a rent to be fixed by an appraisal, to be made by three disinterested appraisers, to be appointed by the Governor and the rent fixed by such appraisal shall be subject to the approval of The

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Canal Commissioners or other proper officers of the State at such time having charge of the Canal property.

It is herein further stipulated and agreed, and the Canal Commissioners hereby expressly reserve the right to cancel this lease and recover possession of the land, property and rights above demised and referred to whenever in the judgment of The Canal Commissioners, or other proper officers of the State at such time having charge of Canal property, they shall deem the interests of the State require it to repossess and use said property for State purposes.

159 In Witness Whereof, the party of the first part has caused this instrument to be signed by its President, and attested by its Secretary and duly authorized its corporate seal to be attached, and said party of the secoid part has hereunto set his hand and seal the day and year first above written.

THE CANAL COMMISSIONERS,
By C. E. SNIVELY,
President.

Attest:
W. R. NEWTON,
Secretary.

HAROLD F. GRISWOLD, (Seal)

Attest:
LAURA SCHUMACHER.

State of Illinois, } ss.
County of Cook. }

I, Carl A. Ross, a Notary Public, in and for said County in the State aforesaid, do hereby certify that Harold F. Griswold, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that he signed, sealed and delivered the said instrument as his free and

160 voluntary act for the uses and purposes therein set forth.

Given under my hand and notarial seal, this 10th day of August A. D., 1905.

CARL A. ROSS,
Notary Public.

161 EXHIBIT D.

Exhibit D
Defendant's
Exhibit 2

Office of The Canal Commissioners,
Lockport Ill., June 11, 1904.

To the Honorable Richard Yates,
Governor of the State of Illinois,
Springfield, Illinois.

Dear sir:

The undersigned Canal Commissioners recommend that the interest of the State of Illinois in and to the parcel or tract of land hereinafter specifically described, being part of the canal lands or lots of the State of Illinois other than those connected with water power upon the said canal and the ninety foot strip along the canal:

A tract or parcel of land in Section Thirty-one (31), Township Thirty-four (34) North of Range Nine (9) East of the Third (3rd) Principal Meridian, which lies north of the center of the Desplaines River and south of the Ninety Foot reserve line of the Illinois and Michigan Canal, in the County of Will and State of Illinois,

Should be sold, as in our judgment the interest of the State will be promoted thereby: and

The Canal Commissioners request the approval of your Excellency to the sale thereof at public auction to the highest and best bidder for cash at the Canal Office in Lockport, Illinois, on the Second (2nd) day of August, 1904, at Ten o'clock in the morning, thirty (30) days previous notice
162 of said sale being first given in some newspaper published in the County of Will where such tract or parcel of land is situated.

Signed C. E. SNIVELY
President.
Signed W. R. NEWTON
Secretary.
Signed W. L. SACKETT
Treasurer.
The Canal Commissioners of the State of Illinois.

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163 EXHIBIT E.

I hereby approve of the sale of the tract or parcel of land described in the foregoing report of The Canal Commissioners at public auction to the highest and best bidder for cash at the Canal Office at Lockport, County of Will and State of Illinois, on the Second (2nd) day of August, 1904, at Ten O'Clock in the morning, thirty (30) days previous notice of said sale being first given by The Canal Commissioners in some newspaper published in the County of Will where such tract or parcel of land is situated.

Done at Springfield this 14th day of June, 1904.

RICH. YATES
Governor of the State of Illinois.

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164 EXHIBIT F.

State of Illinois, } ss.
Will County. }

The Will County Printing Company (incorporated), does hereby certify that it is the publisher of the Lockport Phoenix-Advertiser, a weekly newspaper of general circulation, printed and published in the village of Lockport, in said County, and that the advertisement or notice hereto annexed relating to the matter of sale of canal lands has been published in said paper, in every copy and impression thereof, once each week, for three weeks consecutively of the issues commencing June 16th, A. D., 1904, and ending June 30th, A. D., 1904, which are the dates of the first and last papers containing the same.

Given under the corporate seal of the Will County Printing Company, this 17th day of December, A. D., 1907.

THE WILL COUNTY PRINTING CO., INC.,
Per T. A. CHEADLE,
(Seal) *Secy. & Treas.*

Subscribed and sworn to before me by T. A. Cheadle, this 17th day of December, 1907.

WILLIAM W. NORTH,
(Seal) *Notary Public.*

165 Copy of Notice Herein Referred to:

Exhibit F
Defendant's
Exhibit

Sale of Canal Lands.

Office of the Illinois and Michigan Canal,
Lockport, Illinois, June 15, 1904.

Pursuant to the statute of the State of Illinois, the interest of the State of Illinois in the following described parcels or tracts of land, will be sold at public auction to the highest and best bidder for cash at the Canal Office in Lockport, County of Will and State of Illinois, on the second (2nd) day of August, 1904, at ten o'clock in the morning, in full conformity with "An Act to amend section eight (8) of 'an act to revise the law in relation to the Illinois and Little Wabash Rivers,' approved March 27, 1874, in force July 1st, 1874, as amended by an act of June 19, 1891, in force July 1, 1891," approved April 21, 1899, in force July 1, 1899; situated in the County of Will and State of Illinois, to wit:

A tract or parcel of land in section thirty-one (31), township thirty-four (34) north, of range nine (9) east of the third (3rd) principal meridian, which lies north of the center of the Desplaines River and south of the ninety-foot reserve line of the Illinois and Michigan Canal, in the
166 County of Will and State of Illinois.

The Canal Commissioners reserve the right to reject any and all bids.

C. E. Snively,
President.
W. R. Newton,
Secretary.
W. L. Sackett,
Treasurer.
The Canal Commissioners of the State of Illinois.

June 16-23 and 30, '04.

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167 EXHIBIT G.

Lockport, Illinois, November 1, 1904.

To the Honorable Richard Yates,
Governor of the State of Illinois,
Springfield, Illinois.

Dear sir:—

The undersigned Canal Commissioners recommend that the interest of the State of Illinois in and to the parcel or tract of land hereinafter specifically described, being part of the canal lands or lots of the State of Illinois other than those connected with water power upon the said canal and the ninety-foot strip along the canal:

That part of Section Thirty-one (31), Township Thirty-four (34) North, Range Nine (9) East of the Third (3rd) P. M., Will County, Illinois, lying sonthwest and southeast of the Illinois and Michigan Canal and Northeast and Northwest of the Desplaines River (excepting and reserving the ninety-foot strip of the Illinois and Michigan Canal) subject to the right of flowage and lease of Harold F. Griswold, should be sold, as in our judgment the interests of the State will be promoted thereby; and

The Canal Commissioners request the approval of your Excellency to the sale thereof at public auction to the highest and best bidder for cash at the canal office in Lockport,

168 Illinois, on the 6th day of December, 1904, at ten o'clock in the morning, thirty (30) days previous notice of said sale being first given in some newspaper published in the County of Will where such parcel or tract of land is situated.

C. E. SNIVELY,
President.
W. R. NEWTON,
Secretary.
W. L. SACKETT,
Treasurer.
The Canal Commissioners of the State of Illinois.

169 EXHIBIT H.

Exhibit Defe Exhi

I hereby approve of the sale of the parcel or tract of land described in the foregoing report of the Canal Commissioners at public auction to the highest and best bidder for cash at the Canal Office at Lockport, County of Will and State of Illinois, on the 6th day of December, 1904, at ten o'clock in the morning, thirty (30) days previous notice of said sale being first given by The Canal Commissioners in some newspaper published in the County of Will where such parcel or tract of land is situated.

Done at Springfield this 2nd day of November, 1904.

RICH. YATES,
Governor of the State of Illinois.

170 EXHIBIT I.

Exhibit Defe Exhi

State of Illinois, } ss.
Will County. }

The Will County Printing Company (incorporated) does hereby certify that it is the publisher of the Lockport Phoenix-Advertiser, a weekly newspaper of general circulation, printed and published in the village of Lockport in said County, and that the advertisement or notice hereto annexed relating to the matter of sale of Canal Lands has been published in said paper, in every copy and impression thereof, once each week, for three weeks consecutively of the issues commencing November 3rd, A. D., 1904, and ending November 17th, A. D., 1904, which are the dates of the first and last papers containing the same.

Given under the corporate seal of the Will County Printing Company this 17th day of December, A. D. 1907.

THE WILL COUNTY PRINTING CO., INC.
Per T. A. CHEADLE,
Secy. & Treas.

(Seal.)

Subscribed and sworn to before me by T. A. Cheadle, this 17th day of December, 1907.

WILLIAM W. NORTH,
Notary Public

(Seal.)

171 Copy of Notice Herein Referred To.

Office of the Illinois and Michigan Canal.

Lockport, Illinois, November 3rd, 1904.

Pursuant to the statute of the State of Illinois, the interest of the State of Illinois in the following described parcel or tract of land will be sold at public auction to the highest and best bidder for cash at the Canal Office in Lockport, County of Will and State of Illinois, on the 6th day of December, 1904, at ten o'clock in the morning, in full conformity with "an act to amend section eight (8) of 'an act to revise the law in relation to the Illinois & Michigan Canal and for the improvement of the Illinois and Little Wabash Rivers', approved March 27, 1874, in force July 1, 1874," approved April 21, 1899, in force July 1, 1899; situated in the County of Will and State of Illinois, to wit:

That part of section thirty-one, Township thirty-four (34) North, Range nine (9) East of the Third (3rd) P. M., Will County, Illinois, lying southwest and southeast of the Illinois and Michigan Canal and northeast and northwest of the Desplaines River (excepting and reserving the ninety-foot strip of the Illinois and Michigan Canal) subject to the
172 right of flowage and lease of Harold F. Griswold.

The Canal Commissioners reserve the right to reject any and all bids.

C. E. Snively,
President.
W. R. Newton,
Secretary.
W. L. Sackett,
Treasurer.

Nov. 3, 3—10—17—'04.

173 EXHIBIT J.

Illinois and Michigan Canal.

Know All Men By These Presents, that the Canal Commissioners of the State of Illinois, under the authority vested in them, by the act of the Legislature of the State of Illinois, entitled "An act to revise the law in relation to the Illinois

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and Michigan Canal, and for the improvement of the Illinois and Little Wabash Rivers." Approved March 27th, 1874, in force July 1st, 1874; as amended June 19th, 1891, in force July 1st, 1891; amended April 21st, 1899, in force July 1st, 1899, in consideration of five hundred dollars ($500.), the receipt whereof is hereby acknowledged, do hereby convey and quit-claim unto Harold F. Griswold, the following described parcel or tract of land, to wit:

That part of section thirty-one (31), Township thirty-four (34) North, Range nine (9) East of the Third Principal Meridian, Will County, Illinois, lying southwest and southeast of the Illinois and Michigan Canal and northeast and northwest of the Desplaines River (excepting and reserving a strip of land ninety (90) feet in width on the southerly side of the Illinois and Michigan Canal and bordering thereupon, and continuous throughout the said section thirty-one (31), Township thirty-four (34) North, Range nine (9) East of the Third Principal Meridian), Subject However, to the terms, conditions and provisions of the flowage contract and lease made with said Harold F. Griswold and bearing date September second (2nd) A. D. 1904, which terms, conditions and provisions still remain in full force and shall be fully kept and performed.

174

Duplicate

To Have And To Hold the same, together with all the rights, privileges, immunities and appurtenances thereunto belonging unto said Harold F. Griswold, his heirs and assigns forever.

In Witness Whereof, the said Canal Commissioners of the State of Illinois, have caused their official seal to be affixed hereunto by their secretary and their official names subscribed hereto by their president, this sixth day of January A. D., 1905.

THE CANAL COMMISSIONERS OF THE STATE OF ILLINOIS, by

G. E. SNIVELY,
President.

Attest.
W. R. NEWTON,
Secretary.

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175 EXHIBIT K.

"Memorandum of agreement made and entered into between the Canal Commissioners of the State of Illinois, party of the first part, and Harold F. Griswold, of the City of Evanston, County of Cook and State of Illinois, his successors and assigns, party of the second part, witnesseth:

"That the Canal Commissioners, in consideration of the covenants and agreements hereinafter set forth, to be kept and performed by the said party of the second part, hereby grants to said party of the second part, the right to place and thereafter maintain a line of poles along and upon the land belonging to the State of Illinois, part and parcel of the Illinois and Michigan Canal lands, to be located as hereinafter designated, between the west line of Section 25, Township 34, North, Range 8, Grundy County, Illinois, and Roby street in the City of Joliet, Will County, Illinois; and between the west line of Section 25, Township 34, North, Range 8, Grundy County, Illinois, and the west limits of the City of Morris, in the County of Grundy and State of Illinois. Said line of poles and wires are to be located and built .....
side of the said Canal, and under the direction and supervision of said Canal, or the officer having charge and supervision of the said Canal; provided that where, in the judgment of said superintendent, or officers, the topography
176 of the ground makes it necessary or expedient to have said poles upon the towpath bank of said canal, authority is hereby given to said party of the second part to cross said canal and place poles along the said towpath bank. The necessity or expediency thereof, the place and manner of crossing and placing said poles along said towpath bank to be subject to the approval, and under the direction and supervision of said superintendent, or officer. It is distinctly understood, however, that the aforesaid line of poles shall not, in any event, be located, or maintained in said place, or manner as to interfere with the use or operation of the said canal.

"To have and to hold said privilege to the party of the second part, his successors and assigns, until the 2nd day of September, A. D., 1924; provided that the Canal Commissioners reserve the right to at any time require any change to be made in the location of said line of poles, subject, how-

ever, to any pole line rights now existing, and the right to grant other pole line rights is hereby expressly reserved by the said party of the first part. Exhibit Def Exh

"In consideration of the above, the said party of the second part, for himself, his successors and assigns, covenants and agrees to pay to the Canal Commissioners the sum of $750. for said right between the said west line of section 25, Township 34, North, Range 8, Grundy County, Illinois,
177 and Roby street, in the city of Joliet, Will County, Illinois, and the sum of $250. for said right between the west line of said Section 25 and the west line of the City of Morris, in said Grundy County, Illinois, the receipt of which $750. and said $250. is hereby acknowledged.

"It is hereby further stipulated and agreed that said poles shall be used for the sole and only purpose of stringing thereon the wires of the said party of the second part to carry electricity from and generated at the proposed plant of the said party of the second part, in Section 25, Township 34, North, Range 8, Grundy County, Illinois.

"The said party of the second part further covenants and agrees that it will construct and maintain said pole line and wires in good and workmanlike manner, and will so maintain and operate the same as not to interfere with business along said canal, or the business or property of other persons, or corporations, and also assume all liability for all deaths or personal injuries, or injury to property, or others, which may occur by reason of the construction, or operation of said pole lines, and that it will forever indemnify and save harmless the Canal Commissioners of the State of Illinois from and against all claims or liabilities for or by reason of any damage, the risk of which is hereby assumed by the party of the second part; and also from and against all claims,
178 liabilities or judgments on account of any death or injury, or damage to personal property, all liability for which is assumed by the party of the second part, and the party of the second part agrees to pay all charges and expenses that may be incurred, or any judgments that may be rendered by reason thereof.

"In witness whereof, the said party of the first part have caused this instrument to be signed by the president and attested by its secretary and has duly authorized its corporate seal to be hereunto attached; and said party of the second

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part has hereunto set his hand and seal this 2nd day of September, A. D., 1904.

"THE CANAL COMMISSIONERS,
"By C. E. SNIVELY,
President,
"HAROLD F. GRISWOLD. (Seal)

"Attest:
"W. R. NEWTON,
Secretary."

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179 EXHIBIT L.

Resolved, by the Senate, the House of Representatives concurring herein, That there shall be submitted to the electors of this State at the next election of members of the General Assembly, a proportion to amend the constitution of this State, to-wit:

Resolved, That the separate action of the constitution of this State relating to the canal be amended to read as follows:

The Illinois and Michigan canal, or other canal or waterway, owned by the State shall never be sold or leased until the specific proposition for the sale or lease thereof shall first have been submitted to a vote of the people of the State at a general election, and have been approved by a majority of all the votes cast at such election. The General Assembly shall never loan the credit of the State or make appropriations from the treasury thereof, in aid of railroads or canals;

Provided, That any surplus earnings of any canal, waterway or water power may be appropriated or pledged for its enlargement, maintenance or extension; and,

Provided, further, That the General Assembly may, by suitable legislation, provide for the construction of a deep waterway or canal from the present water power plant of the Sanitary Drainage District of Chicago, at or near Lockport, in the township of Lockport, in the County of Will, to a point in the Illinois river at or near Utica, which may be practical
180 for a general plan and scheme of deep waterway along a route, which may be deemed most advantageous for such plan of deep waterway; and for the erection, equipment and maintenance of power plants, locks, bridges, dams and appliances sufficient and suitable for the development and utilization of the water power thereof; and authorize the issue, from time to time, of bonds of this state in a total amount not to exceed twenty million dollars, which shall draw interest, payable semi-annually, at a rate not to exceed four per cent per

annum, the proceeds whereof may be applied as the General Assembly may provide, in the construction of said waterway and in the erection, equipment and maintenance of said power plants, locks, bridges, dams and appliances.

All power developed from said waterway may be leased in part or in whole, as the General Assembly may by law provide; but in the event of any lease being so executed, the rental specified therein for water power shall be subject to a revaluation each ten years of the term created, and the income therefrom shall be paid into the treasury of the State.

Concurred in by the House October 16, 1907, by a two-thirds vote.

181 EXHIBIT M.

To The Economy Light and Power Company:

I, W. H. Stead, as Attorney-General of the State of Illinois, by virtue of the authority vested in me by law do hereby notify and command you, and your officers, agents, servants and representatives, to cease and desist from in any manner infringing upon, trespassing upon or interfering with the lands owned by the State of Illinois or in which the State of Illinois or the people of the State of Illinois have an easement for the benefit of the public, and located in Section Number Twenty-five (25), in Township Number Thirty-four (34) North, in Range Number eight (8) East of the Third Principal Meridian, in Grundy County, Illinois, by the erection of a dam thereon or otherwise, and to cease and desist from in any way obstructing the Des Plaines River or Illinois River in said Section or elsewhere.

And you are further notified and commanded to remove any and all obstructions that you may have placed upon said premises, whether the same be in the bed of the Des Plaines River or otherwise located.

Dated this 12th day of December, A. D. 1907.

W. H. STEAD,
Attorney-General of the State of Illinois.

Received a copy of the foregoing notice this 12th day of December, A. D. 1907.

THE ECONOMY LIGHT AND POWER COMPANY,
By JOHN F. GILCHRIST,
Secy.

182 Endorsed: Filed this 30th day of December, A. D. 1907, Fred S. Johnson, Clerk.

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State of Illinois, } ss.
Grundy County. }

I Fred S. Johnson, Clerk of the Circuit Court of Grundy County, in the State aforesaid, and keeper of the records and files of said Court, do hereby certify the above and foregoing to be a true, perfect and complete copy of Bill of Complaint, Filed December 30" 1907 in a certain cause lately pending in said Court on the Chancery side thereof, wherein The People ex rel. Charles S. Deneen & William H. Stead, Atty. Gen. were complainants & The Economy Light & Power Co., was defendant, as the same appears from the records and files of said Court now in my office remaining.

In Witness Whereof, I have hereunto set my hand and affixed the seal of said Court at Morris, this 10" day of December, A. D. 1913.

FRED S. JOHNSON,
Clerk.

(Seal)

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183 (DEFT'S EX. I.)

Certified Copy.

IN THE CIRCUIT COURT OF GRUNDY COUNTY,
Illinois.

People of The State of Illinois on the relation of Charles S. Deneen, Governor of said State,
vs.
Economy Light & Power Company.

The Answer of Economy Light & Power Company, Defendant, to the Bill of the People of the State of Illinois on the Relation of Charles S. Deneen, Governor of Said State, Complainant.

ISHAM, LINCOLN & BEALE,
SCOTT, BANCROFT & STEPHENS,
Solicitors for Defendant.

184 IN THE CIRCUIT COURT OF GRUNDY COUNTY, Illinois.

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People of The State of Illinois on the relation of Charles S. Deneen, Governor of said State,
vs.
Economy Light & Power Company.

The Answer of Economy Light & Power Company, Defendant, to the Bill of Complaint of the People of the State of Illinois on the Relation of Charles S. Deneen, Governor of Said State, Complainant.

This defendant, reserving to itself all right of exception to the said bill of complaint, for answer thereto says:

That as to so much and such parts of said bill as allege that the title to the lands lying without the alleged meander lines of Desplaines River through section 25, township 34 north, range 8, east of the third principal meridian, in
185 Grundy County, Illinois, and the lands lying in the bed of the stream of said Desplaines River, through said section 25, is in the State of Illinois, this defendant avers that the People of the State of Illinois upon the relation of Charles S. Deneen as Governor of the State of Illinois, are not the proper parties to exhibit said bill, and this defendant avers that if said lands have not been alienated by the State of Illinois they remain a part of the canal lands, and under section 9 of the act of the legislature of the State of Illinois, entitled "An act to revise the law in relation to the Illinois & Michigan Canal and for the improvement of the Illinois and Little Wabash Rivers," approved March 27th, 1874, in force July 1, 1874, it is made the duty of the Canal Commissioners of the Illinois and Michigan Canal "to take all necessary proceedings on behalf of the State to establish the title of the State and to recover possession of any canal lands or real estate owned by the State which may be claimed by or be in the adverse possession of another person or party," and they are thereby directed "when necessary for that purpose, to cause appropriate suits in the name of the People of the State of Illinois to be instituted and prosecuted therefor." And this defendant avers that if the title to said lands outside of the alleged meander lines along the said Desplaines River and in the bed thereof remains in the State, it only so

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remains in the State in trust for canal purposes and the Canal Commissioners of the Illinois & Michigan Canal are the proper parties to cause said suit to be brought and to control the same, and that the Attorney General of said State upon the relation of Charles S. Deneen, the Governor thereof,
186 or otherwise, has no right, power or authority to institute or prosecute this suit without the express consent and direction of the Canal Commissioners of the Illinois & Michigan Canal; and said bill does not show that it is exhibited by or with the authority of said Canal Commissioners, but, on the contrary thereof, shows that it is not exhibited by or with their authority. And this defendant as to so much of said bill as alleges title to said lands outside of the meander lines along said Desplaines River, and in the bed of the stream, through section 25, to be in the State of Illinois, avers that there is a lack of proper parties complainant, and a lack of power or authority in the Attorney General of the State of Illinois to institute or prosecute said suit, and it prays the same advantages of this answer as if it had demurred to such parts of said bill upon the ground of want of proper parties, and lack of power or authority in the Attorney General of said State to institute or prosecute said suit.

And as to so much and such parts of said bill as charge that this defendant is a trespasser upon such lands, this defendant avers that said Attorney General has no right, power or authority to exhibit or maintain said bill in the name of the People of the State of Illinois upon the relation of Charles S. Deneen, the Governor of said State, or otherwise, but defendant avers that by virtue of the third clause of section nine of said act of March 27, 1874, entitled "An act to revise the law in relation to the Illinois and Michigan Canal and for the improvement of the Illinois and Little Wabash Rivers," the power and authority to cause suits to be commenced and prosecuted against persons trespassing upon canal lands
187 belonging to the State of Illinois is vested in the Canal Commissioners of the Illinois and Michigan Canal, and said bill does not show that it is exhibited by said Attorney General by or with the authority or consent of said Canal Commissioners, but, on the contrary thereof, shows said bill is not exhibited with their authority, and this defendant, as to so much and such parts of said bill as charge that this defendant is a trespasser upon the canal lands of the State, avers that the Attorney General of the State of Illinois has no lawful authority to exhibit said bill either in the name of the People of the State of Illinois upon the relation of Charles

S. Deneen, Governor thereof, or otherwise; and this defendant prays the same benefit of this defense as if it had pleaded or demurred to such parts of said bill upon that ground. Defendant's Exhibit I

This defendant further avers that by the eighth section of said act of March 27, 1874, revising the law in relation to the Illinois & Michigan Canal, etc., said Canal Commissioners are given the control and management of the Illinois and Michigan Canal, including its feeders, basins and appurtenances and the property thereto belonging and that by the eighth clause of said section 8 there is vested in the Canal Commissioners of the Illinois & Michigan Canal full power and authority to lease canal lands or lots owned by the State, to sell and convey any canal lands or lots owned by the State, whenever in their judgment the interest of the State would be promoted thereby, and by section 3 of said act it is provided that suits may be prosecuted by them in the name of "The Canal Commissioners"; and defendant avers that if the flowage contract and lease, dated the 2nd day of Sep-
188 tember, 1904, Exhibits A and B, and the contract of August 8, 1905, Exhibit C, and the deed of January 6, 1905, Exhibit J, to said bill, or any or either of them, are void, the Canal Commissioners are the proper parties, and the only parties, who can maintain an action to set aside said contracts, lease and deed, or any or either of them, and that the Attorney General of the State of Illinois on the relation of Charles S. Deneen, the Governor of said State, or otherwise, has no power or authority to bring or maintain said action, but that any suit to set aside said contracts, leases and deeds can only be prosecuted by said Commissioners in the name of the Canal Commissioners of the Illinois and Michigan Canal; and said bill does not show that it is exhibited by or with the authority of said Canal Commissioners of the Illinois and Michigan Canal, but, on the contrary thereof, shows that it is not exhibited by or with their authority; and this defendant prays the same benefit of this defense as if it had specifically pleaded or demurred to so much and such parts of said bill as seek to have said contracts, leases and deeds declared null and void, for want of proper parties complainant, and for lack of power or authority in the said Attorney General to institute or prosecute said suit.

Defendant avers that as to so much of said bill as alleges that the said contracts, leases and deeds thereto attached, are null and void, the complainant has a complete and adequate remedy at law, and is not entitled to any relief from a court of equity, and the defendant prays the same benefit of

Defendant's Exhibit I.

said defense as if it had pleaded or demurred to said bill of complaint therefor.

189 This defendant avers that said bill shows that the land outside of the alleged meander lines of the Desplaines River in section 25, township 34 north, range 8, east of the third principal meridian, in Grundy County, Illinois, and in the bed of said River in said section 25; and also that part of section 31, township 34 north, range 9, east of the third principal meridian, in Will County, Illinois, lying southwest and southeast of the Illinois and Michigan Canal and northeast and northwest of the Desplaines River (excepting a strip of land 90 feet in width on the southerly side of said Canal) are in the possession of this defendant under bona fide claim of title thereto deduced from the State of Illinois, and defendant avers that so much of said bill as alleges that the title to said lands is in the State of Illinois, and that the defendant is a trespasser thereon, involves the question of the title to said lands, which may be tried and determined at law, and with respect to which the complainant has a complete and adequate remedy at law, and is not entitled to any relief from a court of equity, and as to which the defendant is entitled to a trial by jury as guaranteed by the VII amendment to the Constitution of the United States and by section 5 of Article II of the Constitution of the State of Illinois; and this defendant prays the same benefit of this defense as if it had pleaded or demurred to so much of said bill of complaint as seeks to adjudicate the question of the title to such lands.

And this defendant further avers that by virtue of section 35 of Chapter 45 of the Revised Statutes of the State of Illinois this defendant is entitled to have its claim of title determined in two separate trials before two separate juries,

190 and defendant prays the same benefit of this defense as if it had demurred or pleaded the same in bar to said bill of complaint.

This defendant avers that said bill is an attempt to take the property of this defendant for public purposes, and that by virtue of Section 14 of Article XI of the Constitution of Illinois, this defendant is entitled to have its compensation for the property sought to be taken, fixed by a trial by jury, and it prays the same benefit of this defense as if it had pleaded or demurred to said bill on that ground.

Defendant further avers that said bill is multifarious in that it joins three separate and distinct causes of action:

1st. An alleged cause of action in which the State claims title to certain lands in fee in the capacity of private owner;

2nd. An alleged cause of action in which the State in its sovereign political capacity seeks to assert the rights of the public in an alleged public highway; and

3rd. An alleged cause of action in which the State in its capacity as private owner seeks to set aside certain contracts, deeds and leases which it claims were executed by the Canal Commissioners of the State of Illinois without authority.

And this defendant prays the same advantage of this answer as if it had demurred to said bill on the ground of multifariousness.

This defendant further says that the deed, leases and contracts mentioned in said bill, if voidable, could only be set aside upon restitution to this defendant of the considera-
191 tion paid therefor by Harold F. Griswold, but the people do not in their said bill offer to return the said consideration.

This defendant admits that in the early history of our country a certain territory embracing what is now the States of Ohio, Indiana, Michigan and Wisconsin, was claimed to be owned by Virginia.

Admits that by certain acts of the legislature of Virginia, and by its deed of cession, said territory was conveyed to the United States, as is alleged in the second paragraph of said bill, and that on, to-wit, the 13th day of July, 1787, the Congress of the United States then existing under the articles of Confederation, enacted the ordinance commonly known as the ordinance of 1787.

Admits that section 14 of said ordinance provided that the Articles therein should be considered as articles of compact between the original states and the people and states in said territory, and should forever remain unalterable, unless by common consent, and admits that Article IV provided that "the navigable waters leading into the Mississippi and St. Lawrence, and the carrying places between the same, shall be common highways, and forever, free, * * * without any tax, impost or duty therefor," and this defendant avers that it was also provided in said ordinance, in the fifth article thereof, that the states thereafter to be formed out of said territory should be admitted into the Congress of the United States "on an equal footing with the original states, in all respects whatever."

Admits that on the 18th day of May, 1796, Congress passed an act entitled "An Act providing for the sale of lands
192 of the United States in the Territory Northwest of the River Ohio and above the mouth of the Kentucky River,"

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and admits that section 9 of said act provided that "all navigable rivers within the territory to be disposed of by virtue of this act shall be deemed to me and remain public highways."

But this defendant alleges that said act, by the provisions thereof, did not relate to or affect the land in controversy in this bill, and that said act is wholly immaterial, irrelevant and impertinent to the issues sought to be raised by said bill, and to the relief prayed therein, and defendant prays the same benefit of this answer as if it had excepted or demurred to such portion of said bill upon those grounds.

Defendant admits the organization of Indiana Territory as alleged in said bill.

Defendant further admits that on the 26th day of March, 1804, Congress passed a statute entitled "An Act making provision for the disposal of the public lands in the Indiana Territory and for other purposes," and that by section 6 thereof it was provided that "all the navigable rivers, creeks and waters within the Indiana Territory shall be deemed and remain public highways."

This defendant admits that Congress, by its act of February 3, 1809, entitled "An act for dividing the Indiana Territory into two separate Governments," provided that that portion of Indiana Territory which now comprises the State of Illinois, for the purpose of temporary government, should constitute a separate territory to be called Illinois, and admits that it was provided in said act that there should be
193 established within such territory a government in all respects similar to that provided by the ordinance of 1787, and that the inhabitants thereof should be entitled to and enjoy all the rights, privileges and advantages granted and secured to the people of the territory of the United States northwest of the River Ohio by said ordinance.

Defendant further admits that on the 18th of April, 1818, Congress enacted a statute to enable the people of Illinois to form a constitution and state government, and for the admission of said state into the Union on an equal foot with the original states, and that said statute provided that said government should be republican, and not repugnant to the ordinance of 1787.

Defendant further admits that the people of the Illinois Territory adopted a constitution known as the constitution of 1818, the preamble of which recited that the people of the Illinois Territory, having the right of admission into the general government as a member of the Union, consistent with

Defends Exhib

the Constitution of the United States, the ordinance of Congress of 1787, and the law of Congress approved April 18, 1818, entitled "An act to enable the people of the Illinois Territory to form a constitution and state government, and for the admission of such state into the Union on an equal footing with the original states," did agree to form themselves into a free and independent state.

Defendant further admits that on December 3, 1818, the Congress adopted a resolution declaring the admission of the State of Illinois into the Union, and the said resolution declared, among other things, that the

194 "constitution and state government, so formed, is republican, and in conformity to the principles of the articles of compact between the original states and the people and the states in the Territory Northwest of the River Ohio, passed on the 13th day of July, 1787."

And this defendant avers that the second section of said resolution declared that the State of Illinois should be one of the United States of America "and admitted into the Union on an equal footing with the original states, in all respects whatever," and defendant avers that upon admission of the State of Illinois into the Union said ordinance of 1787 ceased to have, has not since had, and has not now, any operative force within her territory.

This defendant further admits that the River Desplaines is situated in said territory, but denies that it flows a distance of 96 miles through the Counties of Lake, Cook, Will and Grundy in Illinois.

This defendant further admits the allegations in paragraph III of said bill relating to the Kankakee River, but this defendant alleges that the allegations concerning the Kankakee River are wholly immaterial, irrelevant and impertinent to the questions sought to be raised by said bill and the relief prayed thereby, and defendant prays the same benefit of this answer as if it had pleaded or demurred thereto upon such grounds.

Defendant admits that the Desplaines River is wholly within the territory originally comprising what was known as the Northwest Territory, but denies that said river is subject to the provisions of the acts of Congress set forth in the bill.

195 Further answering, this defendant denies that it is shown by the history of the explorations and discoveries of the territory in what is now the northern part of Illinois, or otherwise, that at the time of the explorations and discov-

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eries, or at any other time, the Desplaines River was navigable from a point near where is now situated the City of Chicago, or from any other point, to the mouth of said Desplaines in what is now Grundy County, or to any other point; and this defendant further denies that by the same history, or otherwise, it is shown that the portion of the Desplaines River last above mentioned was used in the early period of the State of Illinois as a highway for commercial purposes, and denies that commerce was carried on over said river, and denies that connection was made with the Chicago River by a short portage between the two rivers near the site of what is now the City of Chicago, and denies that it was in use as a highway of commrce leading from Lake Michigan and the waters emptying into the St. Lawrence, on the one hand, to the Illinois River, and the waters of the Mississippi on the other hand, thenceforward from the time of said first use, or from any time, up to and at the time when the said ordinance of 1787 and the several acts of Congress were respectively enacted.

This defendant further answering denies that the State of Illinois by and through its legislature and in obedience to the several acts of Congress set forth in said bill, or otherwise, assumed or took charge of the said Desplaines River, but admits that the State of Illinois did by a certain act mentioned in said bill, purport to authorize the building of a
196 toll bridge across the Desplaines River on the northeast quarter of section 11, township 39 north, range 12, east of the third principal meridian, and the southeast quarter of section 2 in said town and range, but denies that said act authorized the construction of two bridges, and avers that said act was not passed by virtue of or as a recognition of, any power of the state over said river, but merely to confer upon the persons therein mentioned the franchise to collect toll for traffic over such bridge, and avers that the place where said bridge was so authorized to be located, and was located, was not in that part of the river involved in this case, but was near the Village of River Forest in Cook County on that part of said Desplaines River which was declared navigable by the Legislature of Illinois by its act of February 28, 1839, entitled "An act declaring the Desplaines River a navigable stream."

And admits that afterwards the legislature of the State of Illinois passed an act entitled "An act to amend the several laws in relation to the Illinois & Michigan Canal," in force February 26, 1839, but denies that sub-section 9 of section 2 thereof provided

Defendant's Exhibit

"that no stream of water passing through the canal lands shall pass, by the sale, so as to deprive the state from the use of such water, if necessary to supply the canal, without charge for the same."

And denies that sub-section 11 of said act provided that "lands situated upon streams which have been meandered by the surveys of public lands by the United States shall be considered as bounded by the lines of those surveys and not by the streams,"

but defendant avers that it was provided in section 2 of said act that in all sales of lands and lots under the pro-
197 visions of said act certain conditions should be annexed, and should compose a part of the contract, which conditions included the conditions set forth in sub-sections 9 and 11 of said section 2 above quoted.

And defendant avers that said bill does not allege that the use of any of the water of any stream passing through the lands described in said bill is necessary for the use of such canal; but defendant alleges that on the contrary thereof the use of such water is not necessary to supply the said canal, and that the said Canal Commissioners do not need or desire said waters for canal purposes; and defendant avers that if the use of such water was necessary to supply the canal, the Canal Commissioners would be the proper parties to take such steps as might be necessary to obtain such water, and that the people of the State of Illinois by their Attorney General upon the relation of Charles S. Deneen, their Governor, or otherwise, have no authority to bring or maintain any suit for the purpose of acquiring the waters of such streams for such purposes or otherwise.

And defendant denies that the lands for the Desplaines River were meandered by the survey of the United States.

Defendant avers that section 2 of said act of February 26, 1839, and sub-sections 9 and 11 of section 2, by the express terms thereof, only apply to sales by the Canal Commissioners of lands and lots theretofore authorized to be sold.

And this defendant avers that by the provisions of an act of the Legislature of the State of Illinois passed and in force
198 February 21, 1843, entitled "An act to provide for the completion of the Illinois and Michigan Canal, and for the payment of the canal debt," granting to the Board of Trustees of the Illinois and Michigan Canal, the canal and canal lands, it was provided in section 18 thereof, that when said act should go into effect, so much of the acts theretofore passed by the Legislature of said State in relation to the

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Illinois and Michigan Canal, and the canal lands and property, as conflicted with the provisions of that act, were thereby repealed; and this defendant avers that said sub-sections 9 and 11 of section 2 of the said act of 1839 were in conflict with the provisions of said act of February 21, 1843, and were thereby repealed.

And this defendant avers that by section 13 of said act of February 21, 1843, it was provided that sales of lands should be made in the manner prescribed in the act of the 9th of January, 1836, and this defendant avers that on such provisions as were contained in sub-sections 9 and 11 of section 2 of the act of 1839 were contained in said act of 1836.

This defendant further answering, admits that the Legislature of Illinois, by an act approved and in force February 28, 1839, declared the Desplaines River from the point where it most nearly connects itself with the Illinois and Michigan Canal, to its source within the boundaries of said State, a navigable stream, and declared that it should be deemed and held a public highway and should be and remain, free, open and unobstructed, from said point of connection with said canal to its utmost limits within said state for the passage of all boats and water-craft of every description.

And this defendant avers that said river was not in
199 fact navigable through the course described, or any portion thereof, and denies that the Legislature of said State could by its enactment impart to said stream the character of navigability which it lacked before the passage of said act; and defendant avers that said declaration was a recognition by the Legislature of the State of Illinois that said Desplaines River from the point where said river most nearly connects itself with said canal to its mouth was not navigable and defendant avers that the point where it is constructing its said dam is in that part of said river.

And this defendant, further answering, admits that the Legislature of the State of Illinois, by act of March 3, 1845, authorized Stephen Forbes to construct a dam across the Desplaines River in Cook County on the southwest quarter of section 36, township 39 north, range 12 east, and on the northeast quarter of section 2, township 38 north, range 12, east, in Cook County, Illinois; and that said statute contained the proviso:

"That this act shall not operate to prevent the State from improving said river by dams or from using the water in said river for the Illinois and Michigan Canal at any time hereafter, or for any other purpose";

and this defendant alleges on information and belief that said Stephen Forbes did, pursuant to this act, and on or about the year 1866, construct a dam across said Desplaines River on section 2, in township 38 north of range 12, east, and section 35, township 39 north of range 12 east, without any provision therein for the passage of boats, and he and his grantees and successors in title or interest have maintained said dam ever since, without any provision therein for the passage of boats, and that no boats ever could
200 or did pass said dam, from the date of the construction thereof down to the present time; and this defendant alleges that the place where said dam was authorized to be constructed, and was so constructed, was in that part of said Desplaines River which had theretofore been declared a navigable stream by the Legislature of Illinois; and that said act, authorizing the construction of said dam by said Stephen Forbes, and the construction of said dam were inconsistent with the use of said stream for the purposes of navigation, and that the said dam so constructed by said Forbes would have completely prevented the navigation of said stream if said stream had in fact been navigable.

This defendant further admits that the Legislature of the State of Illinois, by its certain law, entitled "An act authorizing the building of a bridge and road in township 36 north, range 10 east, in Will County," approved and in force February 12, 1849, authorized the construction of a bridge over the Desplaines River at Lockport in Will County, but this defendant avers that said act of the legislature authorizing the construction of said bridge is inconsistent with the use of said stream as a navigable stream, and defendant avers that the object of said act was to provide for the submission to the voters of said township 36 of the question of levying a tax for the purpose of improving the road from the canal bridge in the town of Lockport to some suitable point on the opposite bluff and constructing a bridge across said stream at Lockport upon said road, and not for the purpose of authorizing the construction of a bridge over a navigable stream.

This defendant further answering, admits that the Legislature of the State of Illinois, by its certain act entitled
201 "An act to create Sanitary Districts, and to remove obstructions in the Desplaines and Illinois Rivers," approved May 29, 1889, in force July 1, 1889, provided as is set out in said bill, and admits that section 23 of said act provided that

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said act should not be construed to authorize the injury or destruction of existing water-power rights.

And this defendant avers that the water-power rights which are involved in this cause were in existence at the date of the passage of said act and have since been acquired by this defendant, and that said act not only does not furnish the complainant any right to injure or destroy said right, but, on the contrary thereof, expressly prohibits the injury or destruction thereof.

Defendant further admits that it was provided in section 24 of said last mentioned act, that "whenever the general government shall improve the Desplaines and Illinois Rivers for navigation, to connect with this channel, said general government shall have full control over the same for navigation purposes."

And this defendant avers that said section 24 is a recognition by the Legislature of the State of Illinois that the Desplaines River is not a navigable stream.

This defendant further admits that the Legislature of the State of Illinois, on May 14, 1903, enacted a certain statute entitled "An act in relation to the Sanitary District of Chicago," etc., as is alleged in paragraph IV of said bill, but this defendant avers that said act of May 14, 1903, is wholly irrelevant, immaterial and impertinent, and shows no right, title or interest on the part of the relator, or the State of
202 Illinois, or the people thereof, in or to the subject matter of said bill, or the relief prayed therein, and defendant prays the same benefit of this answer as if it had demurred therefor.

This defendant further answering, admits the organization of the Sanitary District known as the Sanitary District of Chicago, and the construction of the channel as alleged in paragraph IV of said bill, but alleges that said fact is wholly immaterial, irrelevant and impertinent, and prays the same advantage of this answer as if it had demurred therefor.

Defendant admits that afterwards the State of Illinois enacted a certain statute, approved December 6, 1907, and entitled "A bill for an act recognizing the Desplaines and Illinois Rivers as navigable streams, and to prevent obstructions being placed therein, and remove obstructions therein now existing." And that section 1 of said act provided:

"Be it enacted by the people of the State of Illinois represented in the General Assembly: That the Des Plaines and Illinois Rivers throughout their courses from and below the water-power plant of the main channel of the Sanitary Dis-

trict of Chicago in the township of Lockport, at or near Lockport, in the County of Will, are hereby recognized as and are hereby declared to be navigable streams; and it is made the special duty of the governor and of the attorney general to prevent the erection of any structure in or across said streams without explicit authority from the general assembly; and the governor and attorney general are hereby authorized and directed to take the necessary legal action or actions or remove all and every obstruction now existing in said rivers, that in any wise interferes with the intent and purpose of this act,"

203 But this defendant alleges that so much of said act as declares the rivers mentioned therein to be navigable streams, is unconstitutional and of no effect, inasmuch as the power to adjudge and declare the navigability of streams is vested exclusively in the judiciary; and the defendant further alleges that said act is unconstitutional in that:

1st. The body of said act is broader than the title thereof;

2nd. It confers upon the Attorney General and Governor of the State of Illinois judicial powers, to wit, the determination of what obstructions interfere with the intent and purpose of said act;

3rd. It deprives this defendant of its property without due process of law, in violation of the 14th amendment to the Constitution of the United States and Section 2 of Article II of the Constitution of Illinois;

4th. It denies to this defendant the equal protection of the laws in violation of the 14th amendment to the Constitution of the United States;

5th. It is a taking of the private property of this defendant without just compensation, in violation of Section 13 of Article II of the Constitution of Illinois;

6th. It is a special law laying out or opening a highway in violation of Section 22 of Article IV of the Constitution of Illinois.

7th. It is a special law affecting only property in and along the Desplaines River and not affecting other property similarly situated upon other streams, and is in violation of Section 22 of Article IV of the Constitution of Illinois.

This defendant admits that Charles S. Deneen is

204 the Governor referred to in said statute, but denies that he, by virtue and reason of said statute and the direction therein contained, or by virtue of his office as Governor and his constitutional duty to take care that the laws be faithfully

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executed, or otherwise, has a special, or any, interest in the matters therein set forth.

Defendant denies that the Desplaines River has from the time when said ordinance of 1787 was passed, or from any other time, unto the present time or unto any other time, formed in its ordinary condition and by itself to the extent of its course, or otherwise, from the point of said alleged portage and connection with the Chicago River, or from any other point, to its mouth in Grundy County, or to any point or extent, a continued highway with water in sufficient volume and of sufficient depth to afford a channel for navigable and commercial purposes.

This defendant denies that the said Desplaines River from near the City of Chicago to the mouth of said river in Grundy County, or from any point to any other point, has been from the earliest knowledge of said river until the present time, or at any time, in law or in fact a navigable river, and denies that the several acts of the Legislature recited in said bill of complaint show the fact so to be, and denies that it is a fact, that it has been, or is the policy of the State to hold and maintain said Desplaines River to be a navigable river, and denies that said river is subject to the provisions of the several acts of Congress set forth in said bill, and denies that by reason of said acts the said Desplaines River has been, or
205 still continues to be, a highway of commerce, or that it is preserved for the use of the people of the State of Illinois, or the people of all the States of the United States, as a public highway; denies that it has not been alienated, and denies that the people of the State of Illinois have an easement over said river as a public highway for commerce, or otherwise, or that said river or the bed and waters thereof are permanently, or otherwise, impressed or burdened with said alleged easement or with a public right or public use of navigation, or otherwise, but this defendant alleges that on the contrary thereof there has never at any time been any navigation on said river of any kind or character and that said stream from its source to its mouth throughout its entire course is in fact incapable of being navigated.

Defendants avers that the said Desplaines River in its original or natural state or condition had not sufficient water for more than fifteen days in the year to float a canoe, and was not navigable in fact and was not capable of being navigated for purposes of commerce; that there never has been any navigation of said river for useful or commercial purposes; that from the point where the said river crosses the state line

between Illinois and Wisconsin, to the mouth of the stream said stream is a series of pools and shallows, and more nearly resembles a brook or rivulet than a river.

Defendant further avers that from Lockport to the mouth of the Desplaines River, a distance of about 18 miles, there is a fall of 90 feet, an average of 5 feet per mile; that approx-
206 imately one-half the distance is composed of rapids and riffles; that between Lockport and Brandon's bridge, a distance of 7 miles, there is a fall of 34 feet, or about 4.6 feet per mile, and that between Jackson street and McDonough street, in the City of Joliet, a distance of 5,000 feet, there is a fall of 9 feet,—an average of 1.8 feet per thousand feet or over 9.5 feet per mile; and from McDonough street to Brandon's bridge, a distance of 2,000 feet, there is a fall of 3.75 feet or 9.9 feet per mile, and that along Treat's island, for a distance of 2,000 feet, there is a fall of 5.5 fet, or over 14.52 feet per mile, and that below that point, at a point called Smith's bridge, in a distance of 3,000 feet, there is a fall of 2 feet, or 7.92 feet per mile and that at Dresden Heights, where the dam of this defendant is being constructed, in a distance of 2,000 feet, there is a fall of 3.2 feet or 8.44 feet per mile; that from Jackson street, in the City of Joliet, to Brandon's road, a little over 2 miles, in the first 5,000 feet there is a fall of 9 feet, in the next 2,000 feet there is a fall of 3.75 feet; in the next 2,000 feet there is a fall of 5.5 feet, and in the next 3,000 feet there is a fall of 2 feet, making, in a distance of 12,000 feet, 20.25 feet fall, or an average of 8.91 feet per mile.

And defendant further avers that during times of freshets or high water which usually last only for very short periods varying from one day to two weeks, the current over said slopes is so swift that no boats could descend the river except at imminent peril to life and property, and that it would be wholly impossible for boats of any description carrying merchandise or otherwise, to ascend such river at such times.

Defendant avers that various dams and bridges have
207 been erected over said stream as hereinafter set out, all of which were constructed without legislative authority.

That in 1833 a dam known as Beard's Dam was constructed across said Desplaines River near the mouth thereof, in Section 25, Township 34 North, Range 8, East of the Third Principal Meridian, in Grundy County, at substantially the same place where defendant is constructing its dam, without any provision therein for the passage of boats, and that said dam was maintained at said location for many years without an

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provision therein for the passage of boats of any kind or size, and that in fact no boats ever could or did pass through, over or around said dam.

That in 1835, or prior thereto, there were dams located across each channel of said Desplaines River in section 11, township 34 north, range 9, east of the third principal meridian and that said dams remained in said river many years.

And this defendant avers that said two dams last above mentioned were located upon odd-numbered sections, through which sections the state now claims that the shore and the bed of said stream were reserved from sale; and defendant avers that the said dams were constructed by the owners of the lands adjoining said stream upon either side, and were so constructed as an exercise of the right of ownership and dominion of and over the shores of said stream and the land in the bed thereof.

That in 1839 there was a dam built across the Desplaines River near what is now McDonough street in the City of
208 Joliet, which is sometimes called the Adam dam and sometimes Malcolm's dam, and that said dam remained in said river from said date until 1898 when it was removed by the Sanitary District of Chicago upon its paying as damages therefore a sum upwards of $80,000.

That in the summer and fall of 1833 there was a dam built entirely across the river just south of what is now Cass street in the City of Joliet, which said dam remained in said river until 1841, when it was removed by the State of Illinois upon its paying as damages therefor the sum of $17,655.

And defendant avers that said dam was constructed in said stream by the owner of the land abutting upon both sides of said stream and was so constructed by him in the exercise of dominion and ownership over the land abutting upon said stream and in the bed thereof; and defendant avers that if said Desplaines River was at the time of the removing of said dam a navigable stream, and the said dam was an obstruction to the navigation thereof, the said dam was in said stream without right or authority, and that the state could have removed said dam as a purpresture, without the payment of any damages therefor; and defendant avers that the action of the state in paying said damages was an admission that said stream was not navigable and that said dam was lawfully in said stream.

That in 1833 a dam known as Norman's dam, opposite where the state penitentiary is now located, was built across one channel of the Desplaines River.

That prior to 1839 there was a dam known as Daggett's dam built entirely across the river at Lockport.

209 That prior to 1847 there was a dam constructed across the Desplaines River in Lake County, Illinois, extending entirely across the river.

And this defendant avers that there were no provisions in any of said dams for the passage of boats, and that in fact no boats could or ever did pass any or either of said dams.

This defendant further avers that for many years there were no bridges across the Desplaines River, but that the river was forded at many points, and that afterwards bridges were established and are now located at the following points:

Smith's bridge in section 21, township 34 north, range 9, east of the third principal meridian;

The bridge known as the Millsdale bridge, located in section 11, township 34 north, range 9, east of the third principal meridian, near Millsdale in Will County, and that said bridge and the abutments thereof were constructed upon and over the shore and bed of the stream as an exercise of ownership and dominion over said land.

The bridge now known as Brandon's bridge, located in section 30, township 35 north, range 10, east of the 3rd P. M.;

Six bridges in the City of Joliet: one known as the McDonough street bridge, crossing the river at McDonough street, in Joliet; the Chicago, Rock Island & Pacific R. R. Co.'s bridge just north of McDonough street; the bridge across the river at Jefferson street; one at Cass street; one at Jackson street, and one at Ruby street in Joliet.

210 That there is also a bridge across the river in the township of Lockport, on the Lockport highway.

And this defendant avers that all of these bridges above mentioned are fixed bridges and have no provision for the passage of boats, and that boats cannot pass said bridges or any or either of them.

This defendant further avers that no legislative permits were ever granted by the State for the erection of any of the dams hereinabove enumerated, or for the location of any of the bridges hereinabove enumerated.

That in 1846 the State of Illinois completed the dam known as dam No. 1, entirely across the said Desplaines River, forming what is known as the Upper Basin of the Illinois and Michigan Canal, which dam is now in existence.

And that in 1841 the State of Illinois built the dam known as dam No. 2 in the vicinity of what is now Jefferson street, Joliet, extending entirely across the said Desplaines River

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and forming the pool known as the Lower Basin of the Illinois and Michigan Canal; that said dam No. 2 remained in said river from 1841 until 1899, when it was removed by the Sanitary District of Chicago by and with the consent of the Canal Commissioners.

This defendant avers that by stipulation filed in the case of Haven v. The Board of Trustees of the Illinois and Michigan Canal in the Circuit Court of Will County, tried at the October term, 1848, of that court, it was admitted by the Canal Trustees that the Desplaines River was not navigable in
211 fact, although a portion of it had been declared to be so by act of the Legislature.

Defendant avers that in a proceeding brought in the Circuit Court of Will County, Illinois, by the Sanitary District of Chicago against William J. Adams, the dam hereinabove referred to as the Haven dam, together with the water-power rights connected therewith, was taken by said Sanitary District by virtue of the Eminent Domain Law of the State of Illinois, and the said Circuit Court in said proceedings adjudged and decreed that the defendants in said case had a valuable property right in the said dam, and the water-power thereby created, and awarded said defendants a large sum as compensation therefor, and for other property connected therewith, and that said case was, on appeal, affirmed in the Supreme Court of Illinois; and this defendant avers that said judgment of the said Circuit Court and said affirmance in the Supreme Court were in effect a finding that said dam was lawfully in said stream, and that no easement of navigation or otherwise existed therein.

This defendant admits that by act of Congress approved March 2nd, 1827, there was granted to the State of Illinois, every alternate section in a strip of land ten miles wide along the line of the Illinois and Michigan Canal "for the purpose of aiding the opening of a canal to connect the waters of the Illinois River with those of Lake Michigan," as is alleged in paragraph V of said bill, and admits that among the lands thus conveyed by Congress, was section 25, in Township 34 north, range 8, east of the third principal meridian, in Grundy County, Illinois.

212 This defendant admits that the Desplaines and Kankakee Rivers unite and form the Illinois River in the southeast quarter of said section 25, but denies that by the survey of public lands by the United States said Desplaines River was meandered, and denies that the purchasers from the State of Illinois of lands in said section 25 or in other

similarly situated land with reference to the Desplaines River, did not take, or did not claim to take, under their several purchases, that portion of said lands lying between the alleged meander line of the Desplaines River and the waters of said river, and denies that said land between said alleged meander line and the waters of said river have never been used by any individual under any claim of authority or right vested in the purchasers of said lands from the State, save and except as claimed by the defendant. Defendant's Exhibit

Denies that the land lying between the alleged meander line of the Desplaines River and the waters of said river in the southeast quarter of said section 25, together with the bed of the stream of the said Desplaines River in said quarter section of land last above described or in other lands similarly situated with reference to the Desplaines River, or either or any of such lands, have not passed by purchase from the State of Illinois, and denies that the same, and each and every or any part thereof, is owned by the State of Illinois, or held by the State for the use and benefit of the people of the State or the people of the United States as a public highway for commerce, or otherwise.

But, on the contrary thereof, this defendant alleges that the purchasers from the Board of Trustees of the Illinois and Michigan Canal of lands donated to the State by the 213 United States for the purpose of aiding in the opening of a canal to connect the waters of the Illinois River with those of Lake Michigan, did by virtue of their several deeds and purchases, acquire all the right, title and interest of the State in and to all of the land described in their respective deeds, including the land between the alleged meander lines and the waters of streams running through said lands, and in the beds of said streams, and have always claimed title thereto, and that their title to the lands between the alleged meander lines and the waters of said streams and in the beds of said streams have always been recognized, and that the lands between said alleged meander lines and the banks of said streams have been used and cultivated by the purchasers of the lands through which said streams pass down to the banks of such streams, without reference to any alleged meander lines, from the dates of their respective purchases to the present time.

And this defendant admits that the trustees of the Illinois and Michigan Canal executed and delivered to one Charles E. Boyer, a deed bearing date the 22nd day of October, 1860, for the south fraction of the northwest quarter and the north fraction of the southeast quarter and the north fraction of

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the northwest quarter, and the south fraction of the southeast quarter of said section 25, in township 34 north, of range 8, east of the third principal meridian, excepting and reserving so much of said tract as was occupied by the canal and its waters, and a strip 90 feet wide on either side of said canal, said tract containing 196.62 acres and being a portion of the land granted by the United States to the State of Illinois
214 to aid said State in opening a canal to connect the waters of the Illinois River with those of Lake Michigan, and by said State granted to said Board of Trustees of the Illinois and Michigan Canal for the purposes set forth in the act of said State, of February 21st, 1843.

And this defendant denies that no part of the land in the northwest quarter and in the southeast quarter of said section 25, situated outside of the alleged meander line of the Desplaines River, were conveyed by said deed of the Board of Canal Trustees to said Charles E. Boyer, and denies that the same remained the property of the State of Illinois; but, on the contrary thereof, this defendant avers that said deed from the Board of Trustees to said Charles E. Boyer was a conveyance by said trustees to said Charles E. Boyer of all the lands belonging to the State of Illinois in the subdivisions therein described, including the land situated outside of said alleged meander line, and the land lying in the bed of the stream of the Desplaines River, and that the title to all of said lands passed to the said Boyer by virtue of said conveyance.

This defendant admits that its claim to said premises so situated outside of the alleged meander lines of the Desplaines River in said section 25, is based upon mesne conveyances from the said Charles E. Boyer, and the several leases and contracts attached to said bill.

Defendant admits that on March 2nd, 1827, Congress passed an act entitled "An act to grant a quantity of land to the State of Illinois for the purpose of aiding in opening a canal to connect the waters of the Illinois River with those of
215 Lake Michigan," as alleged in said bill, and that said act provided that "the lands shall be subject to the disposal of the Legislature of the said State for the purpose aforesaid and no other."

This defendant admits that by the act of March 2nd, 1827, Congress granted by implication the right of way for the construction of said canal through the sections of public land which were not donated to the State, and that the said grant of right of way by implication extended to the land necessary to be used for the canal of the width contemplated.

Defendant's Exhibit I.

The defendant further admits that afterwards such proceedings were had pursuant to law and said statute, that the route and location of the canal were duly surveyed and laid out, and the odd-numbered sections of land upon the survey of the same duly selected by the commissioner of the land office, as alleged in said bill.

Denies that Artemus J. Mathewson, under the authority and direction of the Canal Trustees, surveyed and marked lines of a 90-foot strip on each side of the canal as finally located and constructed, from one end of said canal to the other, or that he filed in the office of said Board of Trustees maps and profiles of said survey and of said 90-foot strip; and denies that he had any lawful authority so to do.

Admits that a strip of land ninety feet in width on each side of the canal as aforesaid, was reserved from the sale by the Canal Commissioners and the Canal Trustees in many of the sales of canal lands in odd-numbered sections, and that the title thereto remains in the State of Illinois, but denies that said strip, together with the lands necessary
216 for the right of way through the alternate even-numbered sections of said land through which said canal is constructed, constitute integral parts of the canal, or that they are necessary for its preservation and use, or that they are by law preserved and protected against alienation, but on the contrary thereof avers that said Canal Commissioners are expressly authorized by law to sell and convey any portion of said 90 foot strip excepting such portions thereof as are now utilized in connection with the use of water power upon the said canal or the sale of which would prevent or interfere with the proper use and operation of the said canal as a waterway, but admits that the 90-foot strip was expressly reserved from sale in said deed of the trustees of the Illinois and Michigan Canal to said Boyer.

Defendant believes that the exhibits attached to said bill are substantially accurate copies of the originals of which they purport to be copies, but it does not admit that they are true copies.

This defendant admits that the Canal Commissioners of the State of Illinois entered into a certain contracts bearing date the 2nd day of September, 1904, with one Harold F. Griswold, a purported copy of which is attached to said bill and marked Exhibit 9, and admits that the said contract was assigned by the said Harold F. Griswold to this defendant.

This defendant further admits that the said Canal Commissioners entered into a contract of lease with one Harold F.

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Griswold as of the date of September 2, 1904, copy of which is attached to said bill and marked Exhibit B, and admits that said Harold F. Griswold assigned the said contract to this defendant.

217 This defendant further admits that the Canal Commissioners entered into another certain contract with Harold F. Griswold, as of the date of the 8th of August, 1905, a purported copy of which is attached to said bill and marked Exhibit C, and admits that said Harold F. Griswold assigned the said contract to this defendant.

This defendant admits that said Canal Commissioners made an application to the Governor of the State of Illinois for his consent to the sale of certain lands, which application bears date the 11th day of June, 1904, a purported copy of which is attached to said bill and marked Exhibit D, and that a purported copy of the approval of said application by the Governor as of the 14th day of June, 1904, is attached to said bill, marked Exhibit E.

This defendant admits that a certain notice of proposed sale was inserted in the Lockport "Phoenix Advertiser," as is alleged in said information, but that the sale so advertised to be made was adjourned and never thereafter resumed.

Defendant further admits that after the 2nd day of August, and under date of September 2, 1904, the Canal Commissioners entered into the agreement and lease hereinabove mentioned respectively as Exhibits A and B, and that afterwards, and under date of November 1, 1904, the Canal Commissioners of the State of Illinois made an application to the Governor for his consent to the sale of certain lands described in said application, a purported copy of which is attached to the bill, marked Exhibit G, and that the approval of said

218 application for sale by the Governor was made in writing, a purported copy of which, bearing date the 2nd day of November, 1904, is attached to said bill, marked Exhibit H; that pursuant to said application and approval, notice of sale was inserted in the Lockport "Phoenix Advertiser," as alleged in said bill.

Defendant admits that pursuant to said application last above mentioned, and the appoval of the Governor thereof, and of the advertisement in the Lockport Phoenix Advertiser last above mentioned, the said Canal Commissioners sold the lands therein mentioned, and executed a certain deed to Harold F. Griswold as of the date of January 5, 1905, a purported copy of which deed is attached to said bill marked Exhibit J,

and admits that said Harold F. Griswold conveyed said premises so that by mesne conveyance said premises passed to this defendant. Defendant's Exhibit

This defendant further admits that said Canal Commissioners entered into a contract of lease with Harold F. Griswold as of the date of December 2, 1904, a purported copy of which is attached to said bill and marked Exhibit K and made a part thereof, and that said lease was assigned by Griswold to this defendant.

This defendant admits that by virtue of the several deeds, leases and contracts mentioned in said bill, and also by virtue of its ownership of the bed and shore of the Desplaines River, it claims a right to construct a dam across the Desplaines River and across the lands adjacent thereto, and across the 90-foot strip of land, and immediately adjoining the waterway of said Illinois & Michigan Canal and up to the bank or towpath of the said Illinois and Michigan Canal, and to
219 construct said dam so as to flood the lands along the Desplaines River for a distance of several miles above the location of said proposed dam, and on the southeast quarter of said section 25, but denies that said 90-foot strip of land is used for canal purposes, and avers that said 90-foot strip of land through said southeast quarter section has not heretofore been used for any purpose whatsoever either by the Canal Commissioners or by any one pursuant to the authority granted by them, or otherwise, and that said land was swampy, unfit for cultivation, partially covered with water, and unproductive of revenue.

This defendant further avers that during the year 1904, one Charles A. Munroe and associates acquired, in connection with the land purchased and leased from the Canal Commissioners under the various instruments from the said Canal Commissioners to Harold F. Griswold, referred to in said bill, by purchase from the owners thereof, some 1,800 acres of other lands, at an expenditure of upwards of $200,000, the ownership of which gave to said Munroe and associates the right to construct a dam at the mouth of the Desplaines River with a crest at such a height as would back the level of the waters of the Desplaines River to the level of the waters of Lake Joliet, and defendant avers that at the time of the making of said leases, deeds and contracts, the said Canal Commissioners knew that the said Munroe and associates had acquired and were acquiring a large amount of other lands at a large expenditure of time and money, for the purpose of utilizing the same in connection with the lands so acquired from

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said Canal Commissioners, for the purpose of creating water power.

220 Defendant avers that before the beginning of the construction of its said dam and in order that said dam might be located at such a point as would contribute to a waterway, if one should ever be constructed in said stream, one Charles A. Munroe submitted the plans of said proposed dam to said War Department, of the United States, and requested that said Department would give some expression of opinion as to whether the plans submitted would be in harmony with the work of improvement proposed by the United States Government, to-wit, the construction of a navigable waterway from Lockport, Illinois, to St. Louis, Missouri, via the Desplaines, Illinois and Mississippi Rivers, and that thereupon the Chief of Engineers of the United States Army referred the matter to Lieut. Col. W. H. Bixby, of the Corps of Engineers of the United States Army, in charge of the district in which said proposed work was to be constructed, to examine said plans and said proposed work and to report his recommendations thereon; that thereupon the said Bixby reported to the Chief of Engineers of the United States Army as follows:

of H. Bixby, Mar. 1906.

"United States Engineer Office,
508 Federal Building,
Chicago, Ill., March 27, 1906.

Brig. Gen. A. Mackenzie,
Chief of Engineers, U. S. Army,
Washington, D. C.

General:

I. In reply to Department letter (E. D. 58726) dated March 16, 1906, as to the proposed plans of a water power company for a dam across the Des Plaines River, Ill.,

221 just above its mouth, which have been verbally and informally presented to your office by the Hon. H. M. Snapp and the water-power representatives, I have herewith to submit report as follows:—

2. The dam in question is that proposed by Chas. A. Munroe, of Chicago, Ill., as explained by his letter to this office under date of March 20, 1906, with inclosures (copies herewith—2 letters, 3 blue-prints). (5 incls.)

3. The Des Plaines River, so far as now known to this office, has never yet been considered a navigable stream of the United States. It is therefore apprently as yet subject only

to such jurisdiction as applies to all other unnavigable streams and not subject to the provisions of Sections 9-13, Act of March 3, 1899, or to other similar U. S. legislation.

Report of W. H. dated 27, 19

4. The agents of the water power company in question, informally claim to have secured possession of all the land on each bank of the river necessary to allow for construction of the dam and of its accessories, and to protect themselves from all future claims for over-flowage created thereby, so far as any existing known rights are concerned, and the likewise claim that there is no existing State law, or United States law which prohibits their legally going ahead with their proposed construction and that no special law is needed therefor. They admit, however, that in some minor matters, they still lack necessary authority from the local Board of Supervisors, to condemn certain properties which they still wish to acquire in order to facilitate or simplify their future work (such permission, however, not being absolutely essential to such work) and they state that the Board of Supervisors are willing to grant such authority as soon as it is evident that the proposed power dam construction will not interfere with the future development of the river for navigation purposes.

222 5. The water power company agents likewise state that their object in bringing the matter up before the War Department at present, is to make evident that the proposed dam construction not only does not conflict with any existing U. S. law, but also will assist rather than injure the possible future navigation of the Desplaines and Illinois Rivers, should the improvement of such rivers ever be authorized by Congress in the manner proposed by the last Board Report of August 26, 1905, upon the feasibility and cost of a navigable waterway from Lockport, Ill., to St. Louis, Mo., via the Desplaines, Illinois, and Mississippi Rivers (House Document No. 263, 59th Congress, 1st Session); and they desire to secure from the War Department some expression of opinion, informal or otherwise, so far as it can properly be given, that will allow them to assure all inquirers that the War Department so understands the situation, and is making no objection to such prompt progress of the work as is necessary to a business enterprise of its magnitude and importance.

6. Paragraph 17 of the Board Report of August 26, 1905, above referred to, specially stated that the plan submitted by the Board was "not designed to develop water power, but there will probably be no difficulty in modifying it so as to

rt of
. H. Bixby,
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confirm to such development if those who are to benefit thereby will co-operate with the Government. They should pay the cost of the dams, and the damage from flowage, which is no more than they would be compelled to do if the Government made no improvement." The plans herewith submitted by Mr. Munroe show plainly a proposed co-operation such as that described in the above Board report, offered in such manner as not only to pay the cost of this power dam, and to protect the United States against flowage damage, but also to lessen by one the number of locks and dams necessary for future navigation and to otherwise save both time and money ($142,385 in first cost, and $4,000 annually thereafter for maintenance and operation) to the United States, in
223 case Congress should finally decide to undertake the improvement covered by the August 26, 1905, Board report, or to otherwise make this river navigable in this neighborhood. All information, so far received by this office, appears to substantiate the statements of Mr. Munroe, as described above; and I consider that his proposition should be encouraged and that he should receive from the War Department whatever expression of favorable consideration may be proper and allowable under such circumstances.

7. I have carefully considered the question of this power dam project and have talked it over at intervals with Mr. Woermann, while he was Assistant Engineer in local charge of the Illinois River survey under this office before he had been employed by Mr. Munroe, as well as since that time, and have discussed the matter also with Mr. Munroe; and I believe that the provisos of the next paragraph below are fair and advantageous to both sides, and will leave to the future only the question of regulating pool levels so as to avoid a conflict between depths of water needed for navigation and heads of water needed for power purposes, and so as to divide up the river water between the two according to such rights as may exist when the river shall become a navigable water (which it appears not to be at present), and when the United States shall decide to give up the use of the canal and to assume the improvement of the river. Until such time, I do not see how the War Department can assume any definite jurisdiction of the Desplaines River or make any definite demands upon any water-power company already organized for the use of this river. It is my present understanding that these provisos will be accepted by Mr. Munroe.

8. I have therefore to recommend that the Hon. H. M. Snapp and Mr. Charles A. Munroe be informed that the War Department will waive any and all objections which it may have to the progress of such water power dam construction as proposed by Mr. Munroe's letter of March 20, 1906, 224 and its inclosures, provided that he, on the part of the power dam owners, agrees

Report o W. H. dated 27, 190

(a) that he will construct and maintain in good repair, just above the mouth of the Des Plaines River, in location as approximately shown on the blue prints, a dam and spillway sufficient to hold the water surface of its upper pool at a height equal to the present mean level of Lake Joliet (taken at 512.0 feet, Memphis datum); and later whenever Congress shall have ordered the improvement of the Des Plaines River for navigation purposes, will raise this dam 3.0 feet higher (giving pool level of 515.0 feet, Memphis datum) if the War Department shall so order; and will grant the United States the use of such pool so far as needed for navigation;

(b) that he will assume the cost of, and protect the United States from, claims for all flowage damages caused by this dam between its site and the north line of Section 11, Township 34, Range 9 East, which line is about 1.5 miles by river above the next higher lock and dam proposed by the Board report (i. e., Lock No. 4 and Dam. No. 2, at the foot of Treat's Island;

(c) that he will grant to the United States a strip of land at least 150 feet wide across the north end of this dam, to be so located between it and the tow path of the present Illinois and Michigan Canal, as to connect the present mid river above, to the same below, in the manner approximately indicated on the accompanying blue prints; such strip to be used by the United States for the construction and maintenance of a boat lock, its necessary approaches, and other purposes of navigation;

(d) that he will do all the above, free of cost to the United States;

Provided, that the War Department will waive any and all objections which it may have to the progress of such water power dam construction.

Very respectfully,

W. H. BIXBY,
Lt. Col., Corps of Engineers."

225 that thereupon the Chief of Engineers of the United States Army concurred in said recommendation and reported the result of his findings and his recommendations to the Secretary of War, and thereupon and on or about the 7th day of June, 1906, the War Department, by Robert Shaw Oliver, Assistant Secretary of War, send to said Charles A. Munroe, a letter reading as follows:

1906. "War Department,
Washington, June 7, 1906.

Sir—

In reply to your letter of June 5, 1906, addressed to the War Department, in the matter of the construction by yourself and associates of a dam and spillway across the Desplaines River near its mouth, at the location and as shown on maps submitted, with your letter of March 20, 1906, addressed to Lieutenant Colonel W. H. Bixby, Corps of Engineers, U. S. Army, I have the honor to advise you as follows:

It is understood that yourself and associates are willing to comply with the following conditions, viz.:

First. That the details of construction shall be such as to insure permanency and of sufficient capacity to hold the water surface of its upper pool at a height equal to the present mean level of Lake Joliet (taken at 512.0 feet Memphis datum); and later whenever Congress shall have ordered the improvement of the Desplaines River for navigation purposes, the dam shall be raised by you and your associates 3.0 feet higher (giving pool level of 515.0 feet, Memphis dateum), if the War Department shall so order; the United States and the public to have the free use of such pool so far as needed for navigation purposes, and the use of water for power purposes shall be so limited that the level of the
226 pool shall at no time be reduced below that adopted for navigation in the plans of the United States for the slackwater improvement of the river.

Second. That the United States shall be protected from claims for all flowage damage caused by the dam between its site and the north line of section 11, township 34, range 9 east, which line is about 1.5 miles by river above the next higher lock and dame proposed by the board of engineers' report (i. e., Lock No. 4 and dam No. 2 at the foot of Treats Island).

Third. That there shall be conveyed to the United States free of cost a strip of land at least 150 feet wide across the north end of this dam, to be so located, between it and the tow path of the present Illinois and Michigan canal, as to con-

nect the present mid-river above to the same below in the manner approximately indicated on the accompanying blue prints; the right of the United States to enter upon and use such strip of land for the construction and maintenance of a boat lock, its necessary approaches, and for other purposes of navigation, if it so desires, without liability for damages resulting in any way from its operation in connection with construction or maintenance of said lock and appurtenant works to be duly guaranteed. Letter, June 7.

If these conditions are complied with, in the opinion of the Chief of Engineers, U. S. Army, concurred in by this department, the work proposed is in general harmony with the work of improvement recommended by the Board of Engineers appointed under authority of the River and Harbor Act of June 13, 1902 (32 Stat. L., 331, 364), in its report dated August 26, 1905, printed as House Document No. 263, 59th Congress, first session.

Inasmuch, however, as Congress has not as yet authorized the improvement of this river, this department does not
227 deem it expedient to take further and definite action in the matter of approving the plans.

Very respectfully,

ROBERT SHAW OLIVER,
Assistant Secretary of War.

Mr. Charles A. Monroe,
The Rookery, Chicago, Illinois."

And defendant avers that afterwards, to-wit, on or about the 15th day of December, 1906, this defendant acquired from the said Munroe and associates, all the lands and rights so acquired by them, including the leases, deeds and contracts from the said Canal Commissioners to said Griswold, set forth in said bill, and that at the time it so acquired the said lands and rights it paid full consideration therefor without any notice or knowledge of any claim that the said leases, contracts and deeds from the said Canal Commissioners to the said Harold F. Griswold were invalid, and that at said time, and before the payment of the consideration therefor, the said Canal Commissioners had knowledge that this defendant was so acquiring said lands and rights.

This defendant further avers, and states the fact to be, that after said lands were so acquired by it, it immediately entered in and upon the work of constructing its dam at the mouth of said Desplaines River, procured complete plans and drawings of the proposed work, and entered into a con-

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tract for the construction of said dam at a cost of upwards of $500,000, and entered into a contract for the purchase of hydraulic machinery to the amount of $145,000, upon which it has already paid the sum of $52,500, and has become liable for the balance thereof, and defendant avers that the
228 State of Illinois, with knowledge that this defendant was proceeding with the construction of its said dam at great expense relying upon the validity of said deeds, leases and contracts, having stood by and permitted this defendant to make large outlays of money and incur heavy liability in and about the construction of its said dam, without protest or notice that it claimed that said leases, contracts and deeds were invalid, is now estopped to claim that they are invalid; but defendant denies that said several leases, deeds and contracts are ineffectual to confer any right to build or maintain said dam, but avers that said leases, deeds and contracts confer upon this defendant, full right, power and authority to construct and maintain said dam.

And defendant further avers that the earthen portion of said dam which occupies the space between the power-house and the Illinois and Michigan Canal, and which said space is reserved for the construction of a lock, has been entirely completed; that the space between said earthen dam and the Desplaines River has been excavated to a depth of, to-wit, 20 feet, and that from the north bank of said Desplaines River to the center, a distance of 500 feet, the river has been enclosed in a coffer dam; that in connection with said work, the said contractor has erected some 17 buildings, and has, and had on the ground at the time the injunction was issued in this case, engines, derricks, cars, boats, stone, cement, lumber, and material, to the amount of $150,000.

And defendant avers that the plans upon which it was proceeding to construct its said dam at the time of the enter-
229 ing of the temporary injunction herein were the same plans which were so submitted to the War Department and defendant avers that it proposes and intends to construct its said dam in accordance therewith; that it proposes to build its dam of such details of construction as shall insure permanency and of sufficient capacity to hold the water surface of its upper pool at a height equal to the present mean level of Lake Joliet (taken at 512.0 feet Memphis datum); and that whenever Congress or the State of Illinois shall authorize and undertake the improvement of the Desplaines River for navigation purposes it proposes to comply with all the conditions

specified in said letter to the end that its dam and works shall be in harmony with and will not obstruct such improvement.

This defendant further answering, denies that the General Assembly of the State of Illinois, has, by resolution duly passed by the Senate, and concurred in by the House of Representatives, on the 16th day of October, 1907, a purported copy of which is attached to said bill, proposed the building of a deep waterway, commencing at the southern end of the Chicago Drainage Canal and extending southwesterly along the line of the Desplaines and Illinois Rivers in accordance with plans and specifications formulated by the corps of engineers of the U. S. Army under and by direction of a certain act of the Congress of the United States; but avers that the General Assembly did by said resolution propose to submit to the electors of the State of Illinois a proposition to amend the Constitution of said State in the manner stated in said resolution, but defendant admits that in case a deep waterway is built in said Desplaines River, locks and dams with 230 special provisions for navigation, and securing and safeguarding the passage of boats will necessarily be constructed across said deep waterway in the channel of the Desplaines River at or near the location of the site of this defendant's dam, and that such a dam would afford water power of great value; but denies that any water power which might be created thereby will be lost to the State of Illinois if defendant shall be permitted to construct the dam herein mentioned, but, on the contrary thereof, this defendant avers that the state has no water power or right or title thereto upon the said southeast quarter of section 25; but this defendant avers that the water power existing upon the southeast quarter of said section 25 belongs to this defendant, and that the legislature of the State of Illinois has no right, power or authority to create water power and no right, power or authority to take the property of this defendant for that purpose.

And this defendant avers that the act of the legislature of the State of Illinois, passed on the 6th day of December, 1907, entitled "A bill for an act recognizing the Desplaines and Illinois River as navigable streams and to prevent obstructions being placed therein, and to remove obstructions therein now existing," and the joint resolution of the General Assembly, a purported copy of which is attached to said bill and marked Exhibit L, is an attempt upon the part of the said state to take to itself, without compensation to this defendant, the water power of this defendant, and that the resolution of the General Assembly hereinabove mentioned in so far

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is it attempts to provide for the construction of a deep waterway along the Desplaines River and the creation of water
231 power therein, is a violation of the rights of this defendant in and to the bed and shores of said stream in the southeast quarter of said section 25, and is a taking of the private property of this defendant without due process of law in violation of the XIV amendment of the Constitution of the United States and section 13 of Article II of the Constitution of Illinois, and is special legislation in violation of Section 22 of Article 4 of the Constitution of Illinois.

This defendant further answering, avers that by the act of cession of the State of Virginia, of December 20, 1783, and the deed of cession of March 1, 1784, executed pursuant thereto, the State of Virginia did convey, transfer, assign and make over unto the United States for the benefit of the said states, Virginia inclusive, all right, title and claim as well of soil as of jurisdiction, which the said Commonwealth then had to the territory or tract of country within the limits of the Virginia charter, situated, lying and being to the northwest of the River Ohio, to and for the uses and purposes, and on the conditions in said act recited, among which was the condition that the states formed out of said territory should be republican states, and should be admitted members of the Federal Union, with the same rights of sovereignty, freedom and independence as the other states, and that the lands within the territory so ceded to the United States should be considered as a common fund for the use and benefit of such of the United States as had become members of the Confederation or federal alliance of the said states, Virginia inclusive, according to their several respective proportions in the general
232 charge and expenditure, and should be faithfully and bona fide disposed of for that purpose, and for no other use or purpose whatever.

And this defendant avers that the land in said section 25 hereinabove described was among the lands so conveyed by the State of Virginia to the general government; and this defendant avers that by virtue of said act and deed of cession the general government of the United States acquired and held all of the lands thereby conveyed, in trust, for the benefit of all the states of the United States, Virginia inclusive, according to their usual respective proportions in the general charge and expenditure, and had no right or au ority to use or convey said lands for any other use or purpose whatsoever.

And this defendant avers that the United States, holding

said lands in trust as aforesaid, did by its act of March 2, 1827, grant to the State of Illinois, among other lands, section 25 in township 34, range 8, east of the third principal meridian, in what is now Grundy County, Illinois for the purpose of aiding the said state in opening a canal to unite the waters of the Illinois River with those of Lake Michigan, and provided in said act that the said lands should be subject to the disposal of the legislature of the state for that purpose, and no other.

And this defendant avers that the state thereafter, by virtue of said act, held the said lands, including section 25 aforesaid, in trust for the purposes therein expressed, and no other, and that the said state had no right or authority to divert the said section 25, or any portion thereof, from the uses for which the same were granted by the United States and had no authority to retain, use or devote the bed of
233 the Desplaines through said section 25, or the lands bordering upon said stream within the alleged meander lines thereof, for any purpose other than the construction of said canal, and that the application of said lands to any purpose other than those upon which the grant was made, would be a violation of the trust upon which said lands were granted by the general government to said state, and would be a violation of the trust upon which the United States took and held said lands by virtue of the act and deed of cession of the State of Virginia above mentioned.

Defendant avers that in the year 1842, the State of Illinois, after having expended nearly $5,000,000 upon the construction of the Illinois & Michigan Canal, and finding the same far from completion; its treasury empty; the interest upon its bonds, and other indebtedness, long past due, and unpaid; a large portion of the canal lands sold, and the proceeds expended in the construction of said canal, and a large indebtedness, in addition thereto, incurred in the construction of the same; and the value of the remaining canal lands entirely inadequate at their then value to complete the canal at the estimated cost thereof, and no one willing to extend her further credit upon her own faith,—applied to some of the large holders of her canal bonds and indebtedness for a further loan for the purpose of completing the construction of said canal; and after considerable negotiations with various large holders of her bonds and indebtedness, some of those holders offered to subscribe to a loan to the state to the amount of $1,600,000 for the purpose of completing said canal upon the

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condition that the state should convey to trustees for the
234 benefit of the subscribers to said loan, all of her canal lands, town lots, water power, coal beds, stone quarries, and all of the canal property, together with all of the tolls that might be derived from transportation upon the canal, and, in addition thereto, that the state would at the next session of its legislature, adopt and establish a system of revenue by which provision should be made for the prompt and continuous payment of part of the accruing interest upon the whole state debt, and should also provide for the gradual payment of the arrears of interest then due and of such arrears as should thereafter accrue from her then inability to pay the whole interest at its exact maturity; and thereafter, pursuant to said offer, the legislature of the State of Illinois, at its session in 1843, passed an act entitled "And act to provide for the completion of the Illinois & Michigan Canal and for the payment of the canal debt," approved February 21, 1843, section 1 of which provided that for the purpose of raising a fund for the completion of the Illinois & Michigan Canal, "the Governor of this state, be, and is hereby fully authorized and empowered to negotiate a loan solely on the credit and pledge of the said canal, its tolls, revenues and lands" to be granted to the trustees as thereinafter provided, of $1,600,000.

And section 10 of said act provided that "for the purpose of placing in the hands of trustees full and ample security for the payment of said loan authorized by this act, and the interest thereon, as well as for securing a preference in the payment of such canal bonds and other evidences of indebtedness issued by this state for the purpose of aiding in the
235 construction of the Illinois & Michigan Canal, as may be owned by the subscribers to the said loan, the state does hereby irrevocably grant to the said Board of Trustees of the Illinois and Michigan Canal, the bed of said Illinois & Michigan Canal, and the land over which the same passes, including its banks, margins, towpaths, feeders, basins, right of way, locks, dams, water power, structures, stone excavated and stone and materials quarried, purchased, produced or collected for its construction; and all the property, right, title and interest of the state, of, in and to said canal, with all the hereditaments and appurtenances thereunto belonging, or in any wise appertaining; and also all the remaining lands and lots belonging to said canal fund, or which hereafter may be given, granted, or donated by the general government to the state, to aid in the construction of the said canal, and the buildings and erections belonging to the state thereon situa-

ted; the said Board of Trustees to have, hold, possess and enjoy the same as fully and absolutely, in all respects, as the state now can or hereafter could do, for the uses, purposes and trusts hereinafter mentioned."

Defendant's Exhibit

And that by section 20 of said act, the state solemnly pledged its faith to supply, by future legislation, all such defects as might be found necessary to enable the said trustees to carry into full effect the fair and obvious intent of the act.

And defendant avers that thereafter, and pursuant to said act, subscriptions were made to said loan in accordance with the said agreement to subscribe; that thereafter, and at its session in the year 1845, the legislature of the State of
236 Illinois passed an act entitled "An act supplemental to 'an act to provide for the completion of the Illinois & Michigan Canal, and for the payment of the canal debt,' approved February 21, 1843," approved March 1, 1845, section 1 of which provided that after the contract for the loan of $1,600,000 as contemplated in the act entitled "An act to provide for the completion of the Illinois & Michigan Canal and for the payment of the canal debt" should have been duly executed in all respects as was provided by the terms of the above mentioned acts as modified by the provisions of this act, and trustees were appointed as contemplated in said act, the Governor of said state should execute and deliver unto the said trustees a deed of trust of all the property mentioned in the 10th section of said act of February 21, 1843, which said conveyance should include the lands and lots remaining unsold, donated by the United States to the State of Illinois to aid in the completion of the canal, to be held in trust as in the said act stipulated; and defendant avers that thereafter the Governor of the State of Illinois did execute and deliver a deed of trust as provided in said act.

And this defendant avers that by virtue of said act of the General Assembly of the State of Illinois passed February 21, 1843, and entitled "An act to provide for the completion of the Illinois & Michigan Canal and for the payment of the canal debt," and said deed of trust said Board of Trustees of the Illinois & Michigan Canal acquired all the right, title and interest of the state in and to the lands in section 25 hereinabove described, including the bed of the Desplaines River in said section and the lands between said alleged meander
237 lines in said section, for the purpose of securing the payment of the loan authorized by said act to be made for the purpose of completing said canal, and were authorized by said act to sell said lands at public auction in lots and legal

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subdivisions, said sales to be made for cash or on credit in the manner prescribed in the act of the 9th of January, 1836.

And this defendant avers that pursuant to such authority the said Board of Trustees did sell to the said Charles E. Boyer, the south fraction of the northwest quarter, and the north fraction of the southeast quarter, and the north fraction of the northwest quarter, and the south fraction of the southeast quarter, of section 25, in township 34, north of range 8, east of the 3rd P. M., excepting and reserving so much of said tract as is occupied by the canal and its waters, and a strip 90 feet wide on either side of said canal, containing 196.62 acres, more or less, and did execute and deliver to the said Boyer their deed dated the 22nd day of October, 1860, in words and figures substantially as follows, to-wit:

dated 22, 1860.

"Know All Men By These Presents, That the Board of Trustees of the Illinois and Michigan Canal, under the authority vested in said board by the act of the Legislature of the State of Illinois of February 21, 1843, entitled, 'An act to provide for the completion of the Illinois and Michigan Canal and for the payment of the canal debt,' has sold to Charles E. Boyer the following described tract of land, to-wit:

The south fraction of the northwest quarter and the north fraction of the southeast quarter, and the north fraction of the northwest quarter, and the south fraction of the southeast quarter of section twenty-five (25) in township thirty-four (34) north, of range eight (8) east of the third prin-
238 cipal meridian, excepting and reserving so much of said tract as is occupied by the canal and its waters, and a strip ninety (90) feet wide on either side of said canal, containing one hundred ninety-six and sixty-two hundredths (196.62) acres, more or less, said tract being a portion of the land granted by the United States by the act of March 21, 1827, and the 29th of August, 1842, and the 3rd of August, 1854, to the State of Illinois, to aid said state in opening a canal to connect the waters of the Illinois River with those of Lake Michigan, and by said state granted to the said Board of Trustees of the Illinois and Michigan Canal, for the purposes set forth in said act of said state of February 21, 1843.

Know Ye Also, That the said Charles E. Boyer paid to the treasurer of said Board of Trustees the sum of one thousand five hundred and fifty-six dollars and fifty-two cents ($1,556.52), being in full payment of the purchase money for said land, and made according to the conditions set forth in the act of January 9, 1836, entitled 'An act for the construction of the Illinois and Michigan Canal.' In consideration

thereof and the premises, the said Board of Trustees of the Illinois and Michigan Canal has granted, bargained and sold, and by these presents do grant, bargain and sell unto the said Charles E. Boyer, the said tract of land above designated and described. Deed, dated Oct. 22,

To have and to hold the same, together with all right, privileges, immunities and appurtenances thereunto belonging unto the said Charles E. Boyer, his heirs and assigns, for ever.

In Witness Whereof, the said Board of Trustees of the Illinois and Michigan Canal have caused the corporate seal of said board to be affixed hereunto and the names of the president and secretary of said board to be affixed hereunto this 22nd day of October in the year of our Lord, 1860.

W. H. SWIFT,
WILLIAM GOODING,
Secretary."

239 And defendant avers that the said Board of Trustees did by their said deed convey the lands therein described to the said Boyer and that this defendant, by mesne conveyances from the said Charles E. Boyer, and by virtue of the deed of conveyance from the said Board of Trustees of the Illinois & Michigan Canal to said Boyer, acquired all the right, title and interest of the said State of Illinois in and to the said northwest quarter and the southeast quarter of section 25, excepting so much of said tract as was occupied by the canal and its waters and said 90-foot strip.

And this defendant avers that its grantors and predecessors in title have used and cultivated the land lying between the alleged meander line and the waters of said Desplaines River in said southeast quarter of said section 25 down to the bank of said river, for more than 40 years last past, during all of which time they have been in open, notorious and peaceable possession thereof, claiming title thereto in fee simple.

And this defendant avers that the taxing authorities of the State of Illinois and the County of Grundy, in the State of Illinois, have from the date of the deed from the Canal Commissioners to said Charles E. Boyer, levied state, school and county taxes upon all of said land, including the land lying between the alleged meander lines and the waters of said Desplaines River and in the bed of the stream thereof, in said southeast quarter of said section 25, and have from time to time demanded and exacted of this defendant, and defendant's grantors and predecessors in title, the payment of such

taxes, and this defendant and its predecessors in title
240 have ever since the date of the deed from said Board of Trustees to said Boyer, down to the present time, a period of forty-seven years, paid state, school and county taxes upon all of said land, including the land lying between the alleged meander lines and the waters of said Desplaines River, and in the bed of said stream, and the said State of Illinois and the people thereof are thereby estopped from claiming that the title to the lands lying between the alleged meander lines and the waters of said Deplaines River and in the bed of the stream thereof in said southeast quarter of said section 25 has not passed from the State of Illinois, or that it is not now vested in this defendant.

This defendant further answering, denies that the 90-foot strip of land along the Illinois & Michigan Canal is necessary for the proper maintenance and use of the canal, or that it constitutes a necessary integral part of said canal, and denies that the Board of Trustees and said Canal Commissioners of the State of Illinois had not the right and authority, under the law, to convey the same by deed, lease or otherwise; but, on the contrary thereof, this defendant avers that the 90-foot strip is not a part of the Illinois & Michigan Canal but is a part of the canal lands, and has been so held by the Supreme Court of this State, and that said strip has been to a large extent sold by the state, before the date of the said lease and contract of September 2, 1904.

Defendant avers that the land described in the deed from the Canal Commissioners to Harold F. Griswold, bearing date the 6th day of January, 1904, a purported copy of
241 which is attached to said bill as Exhibit J, to-wit, that part of section 31, township 34 north, range 9, east of the third principal meridian, in Will County, Illinois, lying southwest and southeast of the Illinois & Michigan Canal, and northeast and northwest of the Desplaines River (excepting a strip of land 90 feet in width on the southerly side of the Illinois & Michigan Canal and bordering thereon and continuous throughout said section 31) were canal lands and were not connected with water power upon the said canal or the 90-foot strip along the canal, and that the said Canal Commissioners had full power and authority to sell and convey the same.

This defendant avers that by mesne conveyances from the said Charles E. Boyer, it did acquire title in fee simple to the lands lying in the bed of said Desplaines River and outside of the alleged meander lines of said stream in the south-

east quarter of said section 25, and that by virtue of said contracts, Exhibits A and B, this defendant did acquire the right purported to be granted thereby, in and to the 90-foot strip of land lying between the waters of the Illinois & Michigan Canal and the said Desplaines River, and that the said deeds, leases, contracts and other agreements are valid and subsisting deeds, leases, contracts and agreements to the premises therein respectively described; and this defendant denies that by virtue of the several enactments of the Congress of the United States, and the several acts of the legislature of the State of Illinois, as set forth in said bill, the bed of the Desplaines River is owned by the State of Illinois, or that the same has not been conveyed by any deed to anybody
242 whomsoever; and denies that the lands on said section 25 last above described, and other sections of land along the line of the Desplaines River, so granted to the State of Illinois by the act of Congress hereinbefore referred to, outside of the alleged meander line of the Desplaines River, have not been conveyed by the State of Illinois nor by any other person or persons, or corporation whomsoever, having authority to so convey the same, and deny that the same remain, and are, owned by the State of Illinois; but, on the contrary thereof, this defendant avers that by virtue of the act and deed of cession of the State of Virginia, and the act of Congress of March 2, 1827, and the act of the legislature of the State of Illinois of February 21, 1843, the act of the legislature of the State of Illinois of March 1, 1845, and the deed of trust executed pursuant thereto, and the deed of the Board of Trustees of the Illinois & Michigan Canal, hereinabove referred to, and by mesne conveyances from the said Charles E. Boyer to this defendant, this defendant acquired all the said lands in the southeast quarter of section 25, township 34, range 8, east of the third principal meridian, in Grundy County, Illinois, excepting so much of said tract as is occupied by the canal and its waters, and a strip 90 feet wide on either side of said canal.

This defendant admits that it claims to be the owner of the bed of the stream of the Desplaines River and other lands of said southeast quarter of said section 25, and other lands for a distance of nine miles up the Desplaines River, which are outside of the alleged meander lines of said river, but denies that said claim is in violation of the rights and in
243 interest of the People of the State of Illinois, as alleged in said bill; and defendant avers that it has at great expense acquired lands in the bed of said Desplaines River, and

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along the shore thereof for a distance of about nine miles, including all the lands which will be flooded by its proposed dam, for the purpose of creating water power as alleged in said bill; admits that it had actually begun the erection of a dam across the said Desplaines River and across the 90-foot strip of land alleged by said bill to be reserved for the use of the Illinois & Michigan Canal, and across other lands outside of the alleged meander lines of the Desplaines River to connect with the bank or towpath of the canal, and was so constructing said dam as to cause the water to be backed up and to overflow the lands along said river for the distance of 9 miles or thereabouts, but denies that any of the lands so to be overflowed belong to the State of Illinois.

This defendant admits that on the 12th day of December, 1907, the attorney general of the State of Illinois caused to be served upon it a certain notice as is alleged in paragraph 9 of said bill, copy of which is attached to said bill, marked "Exhibit M;" and admits that it disregarded said notice as it had a right to do; and admits that after the service of said notice, it continued in the work of constructing said dam at said place in the bed of said river, as alleged in said bill; and admits that it continued such construction up until the issuance of the temporary injunction herein; but denies that the completion of said dam would be to the great impairment, or any impairment, of the easement of navigation, if any such
244 easement existed, or to the great and irreparable injury, or to any injury, of the people of the State of Illinois, but avers that in case the United States or the State of Illinois should hereafter construct a deep waterway in said Desplaines River said dam will be a distinct aid and benefit thereto, to the extent of more than $500,000.

Denies that if said dam is permitted to be erected by said defendant, it will destroy and interfere with the Desplaines River of Illinois, or for the people of the United States, and avers that its said dam does not and will not in anywise interfere with the intent and purpose of said act of the Legislature of Illinois of December 6, 1907.

Denies that it will overflow or destroy the value of lands, and the use of lands, belonging to the state, adjacent to the Desplaines River, or that it will destroy the use of the 90-foot strip of land, or that it will render the same inoperative, and a purpresture, or that it will impair the benefit of the same to said canal; denies that it will destroy a feeder of the Illinois & Michigan Canal, or that it will constitute a purpres-

ture or that the same will produce and work irreparable loss and damage, or any loss and damage to, the Illinois & Michigan Canal, or to the State of Illinois, or to the rights of the people of the State of Illinois.

This defendant further answering, admits that the agreement, Exhibit A, purports to give rights as therein set forth; but denies that each and every, or any, of the provisions of such agreement relating to such rights were beyond the
245 power of the said Canal Commissioners to grant; but avers that at the date of said several agreements, the said Canal Commissioners, had full power and authority to grant the rights and privileges granted in and by each and every of said contracts.

This defendant admits that the lease, Exhibit B, purported to convey and demise an interest in the said 90-foot strip within the area described in said lease, in that part of the canal called the Kankakee Feeder, and purported to give a right of removal to the party of the second part therein named, and purported to be made subject to said contract Exhibit A.

Admits that each of said contracts purported to be contracts on the part of the Canal Commissioners with said Griswold, his successors and assigns, but denies that by their terms they might be assigned one to one assignee and the other to another or different assignee.

This defendant admits that the said contract was so entered into between the parties thereto, with the mutual knowledge and understanding that the party of the second part, or his assignee, intended to make use of the same in erecting said dam and developing water power in the Desplaines River, but denies that the same amount to a lease of water power rights on, or of lots and lands connected with water power on the Illinois and Michigan Canal.

Admits that said lease and contract were not entered into upon notice by publication, and that they were not limited to a period of ten years, but denies that that fact was contrary to the provisions of a certain act entitled "An act
246 to revise the law in relation to the Illinois & Michigan Canal and for the improvement of the Illinois and Little Wabash Rivers," approved March 27, 1874, and acts amendatory thereof, and in particular to the provisions of clause 6 of section 8 of said statute as amended by a certain act amendatory thereof, approved June 19, 1891, in force July 1,

1891, and deny that the said lease and contract were beyond the power of the commissioners to enter into, or that the same are null and void.

This defendant denies that treating said instruments as leases of water power, they are subject to the power of the state to resume, without compensation to this defendant, the use of such water power, or that they are further subject to the power of the state to abandon or destroy the work by the construction of which the water privilege therein purported to be conferred shall have been created whenever, in the opinion of the legislature, such work shall cease to be advantageous to the state.

This defendant denies that clause 6 of section 8 of the act approved March 27, 1874, as amended by act approved June 19, 1891, applies to the premises so leased by said instrument, and avers that said act only authorizes the abandonment or destruction of works over which the state or the canal commissioners have control.

This defendant denies that the opinion of the legislature that such work has ceased to be advantageous to the state, was expressed by the statute approved and in force December 6, 1907, entitled "An act recognizing the Desplaines and Illinois Rivers as navigable streams, and to prevent ob-
247 structions being placed therein, and to remove obstructions therein now existing."

This defendant avers that said act last mentioned has no reference to any work connected with said canal, over which the said Canal Commissioners or the legislature of the State of Illinois had any authority or control.

This defendant denies that said contract was a further lease for the purpose of enabling the assignee therein to develop and create water power, but avers the same was merely a flowage contract and not necessary to be made in conformity with the provisions of the statute last above cited in reference to the Illinois & Michigan Canal.

Denies that the Kankakee Feeder was an integral part of said canal or that said agreement was beyond the power of the Canal Commissioners to make; but, on the contrary thereof, said feeder has long since been abandoned, and was wholly unnecessary for the operation of said canal.

This defendant admits that said lease, Exhibit C, contained a provision expressly reserving to the Commissioners the right to cancel the lease and to recover possession of the land,

property and rights therein demised and referred to, whenever in the judgment of the Canal Commissioners or other proper officers of the state at such time having charge of the canal property, they shall deem the interest of the state required it to re-possess and use said property for state purposes; but this defendant denies that said power of revocation and cancellation may be exercised by the legislature of
248 the state, and denies that the same was exercised by the legislature of the state by the enactment of the statute of December 6, 1904, above referred to; and denies that the exercise of the powers, privileges and rights conferred by said lease Exhibit C will constitute and create obstructions of the Desplaines River.

This defendant admits that Exhibit J purports to convey the lands therein described, and in terms includes the lands lying and being situated outside of the alleged meander lines of the Desplaines River, and that it purports to be subject to the terms of said flowage contract, Exhibit A, and said lease, Exhibit B.

This defendant denies that the lands and lots described in said deeds are lands and lots connected with the water power privileges.

Denies that Exhibits A and B purport to convey and create water power privileges.

Admits that said advertisement thereof did not designate and describe said premises as water power privileges, and did not limit the same to the term of ten years, but denies that leases of water power privileges were at the time of the execution of said lease limited by law to a term of ten years, but avers that by the sixth clause of section 8 of the act of March 27, 1874, entitled "An act to revise the law in relation to the Illinois & Michigan Canal and for the improvement of the Illinois and Little Wabash Rivers," as amended by act approved April 21, 1899, in force July 1, 1899, the Commissioners were given power to lease water power and lands and lots connected therewith for a period of twenty years,
249 and power to provide for the extension of any lease from time to time.

And this defendant denies that said contract and lease, Exhibits A and B, were beyond the power of said commissioners, or were null and void, and denies that the same were leases of water power or lands and lots connected therewith within the meaning of any of said acts, or that they were

subject to any power in the state to resume the same, or to abandon and destroy the work by the construction of which water power shall have been created, whenever in the opinion of the legislature such work should have ceased to be advantageous to the state.

And this defendant denies that the opinion of the legislature that the work ceased to be advantageous to the state was expressed by the statute, approved and in force December 6, 1907, entitled an act recognizing the Desplaines and Illinois Rivers as navigable streams and to prevent obstructions being placed therein, and to remove obstructions therein now existing.

This defendant admits that the pole lease, Exhibit K, conveyed to said Griswold, his successors and assigns, the right to maintain a line of poles along said canal from the west line of said section 25, upon which said dam has been located, to Robey street, in the City of Joliet, and from the same point in said section 25 to the west limits of the City of Morris, in Grundy County; and this defendant admits that the said lease was made upon the same day as said contract and lease, Exhibit A and Exhibit B, and admits that it was for the
250 purpose of transferring and conveying electrical energy by said proposed line of poles, but denies that it was subject to all the infirmities alleged in said bill as to said contract and lease, Exhibits A and B, or to any infirmity.

This defendant denies that said contract, deeds and leases, or either, or any of them, were entered into on an inadequate consideration; but, on the contrary thereof, avers that the consideration paid therefor by said Harold F. Griswold to said Canal Commissioners was wholly adequate and was the full value of the rights thereby granted.

Defendant avers that the granting of the temporary injunction herein without bond has resulted in irreparable injury to this defendant, and was a taking of the property of this defendant without due process of law in violation of the 14th Amendment to the Constitution of the United States, and section 2 of Article III of the Constitution of Illinois.

This defendant denies that the said complainant, the State of Illinois, or the people thereof, are entitled to the relief prayed for in said bill, or any part thereof, and prays the same advantage of this answer as if it had pleaded or demurred to said bill of complaint, and it prays that the temporary injunction heretofore issued herein be dissolved, and

that defendant be hence dismissed, with its reasonable costs and charges in this behalf most wrongfully sustained. Defen Exhi

ECONOMY LIGHT & POWER COMPANY,
By SCOTT, BANCROFT & STEPHENS.

ISHAM, LINCOLN & BEALE,
SCOTT, BANCROFT & STEPHENS,
Solicitors for said Defendant.

251 (Endorsed) Filed this 30" day of March, 1908 Fred S. Johnson, Clerk.

State of Illinois, } ss.
Grundy County. }

Certifi clerk Grun Coun cuit C

I, Fred S. Johnson, Clerk of the Circuit Court of Grunday County, in the State aforesaid, and keeper of the records and filed of said Court, do hereby certify the above and foregoing to be a true, perfect and complete copy of a certain answer, filed March 30", 1908, in a certain cause lately pending in said Court, on the Chancery side thereof, wherein The People ex rel. Charles S. Deneen & William H. Stead Atty. Genl. were complainants & The Economy Light & Power Co., was defendant, as the same appears from the records and files of said Court now in my office remaining.

In Witness Whereof, I have hereunto set my hand and affixed the seal of said Court at Morris, this 10" day of December, A. D. 1913.

FRED S. JOHNSON,
Clerk.

(Seal)

252 (DEFT'S EX. 3.)

CIRCUIT COURT OF GRUNDY COUNTY,

Chancery.

March Term, 1908.

The People ex rel. Charles S. Deneen and William H. Stead, Atty. Gen.
vs.
The Economy Light & Power Co.
} No. 1526.

This cause having come on to be heard on final hearing upon the pleadings and upon the depositions taken and filed herein and upon the evidence taken and heard on behalf of the parties respectively in open court and the court being fully advised and having heard argument of counsel, it is ordered, adjudged and decreed that the information or Bill of complaint herein be and it is hereby dismissed for want of equity without prejudice however to the right of the State of Illinois to hereafter claim in any future proceeding that the provisions of the lease (in said information mentioned and made Exhibit B thereof) made by the Canal Commissioners of Illinois to Harold F. Griswold under date of September second 1904 relating to the making of a renewal at the expiration of the term of said lease are void and of no effect.

Complainant excepts to the finding and decree of the court.

Whereupon the complainants pray an appeal to the Supreme Court of Illinois which is hereby allowed and time is granted and leave is given to complainants to file a certificate of evidence by September 15th, 1908 and said appeal is allowed without bond.

June 27, 1908.

Entr.

JULIAN W. MACK,
Judge.

253 State of Illinois, } ss.
Grundy County. }

Certific
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I, Fred S. Johnson, Clerk of the Circuit Court of Grundy County, in the State aforesaid, and keeper of the records and files of said Court, do hereby certify the above and foregoing to be a true, perfect and complete copy of a decree entered June 27th, 1908, and recorded in Chancery Record I on page 62 thereof, in a certain cause pending in said Court, on the Chancery side thereof, wherein The People ex rel. Charles S. Deneen & William H. Stead, Atty. Gen. were complainants & The Economy Light & Power Co., was defendant, as the same appears from the records and files of said Court now in my office remaining.

In Witness Whereof, I have hereunto set my hand and affixed the seal of said Court at Morris, this 10" day of December, A. D. 1913.

FRED S. JOHNSON,
Clerk.

(Seal)

(Here follows a Certified copy of the Opinion filed in the Supreme Court for the State of Illinois, on the 26th day of October, 1909, in the cause entitled People ex rel. C. S. Deneen, Appellant v. Economy Light & Power Co. The same Opinion is set out in Abstract of Proofs in Vol. III on pages 3127 and not copied here.)

254 Northern District of Illinois, } ss.
Eastern Division. }

Certific
clerk

I, T. C. MacMillan, Clerk of the District Court of the United States for the Northern District of Illinois, do hereby certify the above and foregoing contained in Volumes, marked Abstract of Proofs, Vol. I, Vol. II, Vol. III and Volume IV of Proofs, to be true and complete copies of the same, made in accordance with Praecipe, filed in this Court, in the cause entitled, United States of America, vs. Economy Light & Power Company, as the same appear from the originals thereof, now remaining in my custody and control.

In Testimony Whereof, I have hereunto set my hand and affixed the seal of said Court, at my office, in the City of Chicago, in said District, this sixth day of August, 1917.

T. C. MACMILLAN,
Clerk.

(Seal)

255 United States of America. } ss.

The President of the United States to the United States of America and Charles F. Clyne, U. S. Attorney, Greeting:

You are hereby cited and admonished to be and appear at the United States Circuit Court of Appeals for the Seventh Circuit, to be holden at the City of Chicago, in the State of Illinois, within Thirty days from the date hereof, pursuant to an order allowing an appeal entered in the Clerk's office of the District Court of the United States for the Eastern Division, Northern District of Illinois, in that certain action, No. 29,776, in which the United States of America is the complainant and appellee, and the Economy Light and Power Co. is defendant and appellant, to show cause, if any there be, why the decree rendered against the said defendant and appellant, as in the said order allowing the appeal mentioned, should not be corrected and why speedy justice should not be done to the parties in that behalf.

Witness the Honorable Kenesaw M. Landis, Judge of the United States District Court in and for the Eastern Division of the Northern District of Illinois, this 14th day of July, A. D. 1917.

KENESAW M. LANDIS.
District Judge.

Service of the within citation, and receipt of a copy thereof, admitted this 20th day of July, A. D. 1917.

CHARLES F. CLYNE.
U. S. Attorney.

256 Endorsed: Filed July 20 1917 at ____ o'clock ____ M. T. C. MacMillan, Clerk.

IN THE UNITED STATES CIRCUIT COURT OF APPEALS Stipulat

For the Seventh District.

Economy Light and Power Company, a corporation, *Appellant.*
vs.
United States of America, *Appellee.*

STIPULATION.

It Is Hereby Stipulated between the parties, hereto, by their respective counsel, that the continuance of the narrative of John Tanner, which appears upon pages 1073 to 1078, both inclusive, of the record of proceedings upon the trial of the above entitled cause in the United States District Court for the Eastern Division of the Northern District of Illinois, and which was inadvertently omitted from the "matters introduced upon the hearing, and not appearing in the printed record" filed in said District Court pursuant to order of said court entered July 3, 1917, and copy of which is hereto attached numbered pages 11, 12, 13, 14 and 15, both inclusive, may be filed in the Circuit Court of Appeals as a part of the record on appeal in that court, and may be printed and inserted in the transcript of record in said cause immediately following the first portion of the narrative of said John Tanner ending upon page 2455 of said transcript of record.

FRANK H. SCOTT,
Attorney for Appellant.
CHARLES F. CLYDE,
CLARENCE N. GOODWIN,
Attorneys for Appellee.

United States Circuit Court of Appeals for the Seventh Circuit.

I, Edward M. Holloway, Clerk of the United States Circuit Court of Appeals for the Seventh Circuit, do hereby certify that the foregoing printed pages, numbered from 1 to 3351, inclusive, contain a true copy of the printed record consisting of four (4) volumes, filed November 15, 1917, on which this cause was heard, argued and determined in the case of Economy Light and Power Company vs. United States of America, No. 2525, October Term, 1916, as the same remains upon the files and records of the United States Circuit Court of Appeals, for the Seventh Circuit.

In testimony whereof I hereunto subscribe my name and affix the seal of said United States Circuit Court of Appeals for the Seventh Circuit, at the City of Chicago, this fifth day of May A. D. 1919.

[Seal United States Circuit Court of Appeals, Seventh Circuit.]

EDWARD M. HOLLOWAY,
Clerk of the United States Circuit Court of Appeals for the Seventh Circuit.

At a Regular Term of the United States Circuit Court of Appeals for the Seventh Circuit, begun and held in the United States Courtroom in the City of Chicago, in said Seventh Circuit, on the third day of October, 1916, of the October term in the year of our Lord one thousand nine hundred and sixteen and of our Independence the one hundred and forty-first.

And afterwards, to-wit: On the fourteenth day of August, 1917, in the October term last aforesaid, came the appellant, by its counsel, Mr. Frank H. Scott, and filed in the office of the Clerk of this Court his appearance, which appearance is in the words and figures following, to-wit:

United States Circuit Court of Appeals for the Seventh Circuit, October Term, 1916.

No. 2525.

ECONOMY LIGHT AND POWER CO., Appellant,

vs.

UNITED STATES OF AMERICA, Appellee.

The Clerk will enter my appearance as counsel for the appellant.
FRANK H. SCOTT.

Endorsed: Filed Aug. 14, 1917. Edward M. Holloway, Clerk.

At a Regular Term of the United States Circuit Court of Appeals for the Seventh Circuit, begun and held in the United States Courtroom in the City of Chicago, in said Seventh Circuit, on the second day of October, 1917, of the October term, in the year of our Lord one thousand nine hundred and seventeen and of our Independence the one hundred and forty-second.

And afterwards, to-wit: On the eighth day of February, 1918, in the October term last aforesaid, the following further proceedings were had and entered of record, to-wit:

FRIDAY, February 8, 1918.

Court met pursuant to adjournment.

Present:

Hon. Francis E. Baker, Circuit Judge, presiding.
Hon. Christian C. Kohlsaat, Circuit Judge.
Hon. Samuel Alschuler, Circuit Judge.
Hon. Evan A. Evans, Circuit Judge.
Edward M. Holloway, Clerk.

Before Hon. Francis E. Baker, Circuit Judge.

No. 2525.

ECONOMY LIGHT AND POWER COMPANY

vs.

UNITED STATES OF AMERICA.

Appeal from the District Court of the United States for the Northern District of Illinois, Eastern Division.

Upon the filing of a stipulation of counsel, It is now here ordered that the continuation of the narrative of John Tanner attached to said stipulation be, and the same is hereby made a part of the record in this cause in this Court.

And afterwards, to-wit: On the sixth day of May, 1918, in the October term last aforesaid, the following further proceedings were hand and entered of record, to-wit:

MONDAY, May 6, 1918.

Court met pursuant to adjournment.

Present:

Hon. Francis E. Baker, Circuit Judge, presiding.
Hon. Christian C. Kohlsaat, Circuit Judge.
Edward M. Holloway, Clerk.

Before Hon. Christian C. Kohlsaat, Circuit Judge.

2525.

ECONOMY LIGHT AND POWER COMPANY

vs.

UNITED STATES OF AMERICA.

Appeal from the District Court of the United States for the Northern District of Illinois, Eastern Division.

It is ordered that the time for appellee to file its brief be, and the same is hereby extended to August 1, 1918.

And it is further ordered that this cause be, and the same is hereby

set down for hearing on Wednesday, October 2, 1918, by agreement of counsel.

And afterwards, to-wit: On the fifth day of July, 1918, in the October term last aforesaid, the following further proceedings were had and entered of record, to wit:

FRIDAY, July 5, 1918.

Court met pursuant to adjournment.

Present:

Hon. Francis E. Baker, Circuit Judge, presiding.
Hon. Samuel Alschuler, Circuit Judge.
Edward M. Holloway, Clerk.

Before Hon. Samuel Alschuler, Circuit Judge.

2525.

ECONOMY LIGHT AND POWER COMPANY

vs.

UNITED STATES OF AMERICA.

Appeal from the District Court of the United States for the Northern District of Illinois, Eastern Division.

On application of counsel for appellee, it is ordered that the appellee may withdraw from the files of this Court in this cause the original books of maps, etc., same to be returned within 30 days from this date.

And afterwards, to-wit: on the seventeenth day of September, 1918, in the October term last aforesaid, the following further proceedings were had and entered of record, to-wit:

TUESDAY, September 17, 1918.

Court met pursuant to adjournment.

Present:

Hon. Francis E. Baker, Circuit Judge, presiding.
Hon. Evan A. Evans, Circuit Judge.
Edward M. Holloway, Clerk.

2525.

ECONOMY LIGHT AND POWER COMPANY

vs.

UNITED STATES OF AMERICA.

Appeal from the District Court of the United States for the Northern District of Illinois, Eastern Division.

It is ordered that the order of May 6, 1918 in this cause be, and the same is hereby vacated.

At a Regular Term of the United States Circuit Court of Appeals for the Seventh Circuit, begun and held in the United States Court-room in the City of Chicago, in said Seventh Circuit, on the first day of October, 1918, of the October term, in the year of our Lord one thousand nine hundred and eighteen and of our Independence the one hundred and forty-third.

And afterwards, to-wit: On the first day of October, 1918, in the October term last aforesaid, the following further proceedings were had and entered of record, to-wit:

TUESDAY, October 1, 1918.

Court opened by proclamation of crier.

Present:

Hon. Francis E. Baker, Circuit Judge, presiding.
Hon. Julian W. Mack, Circuit Judge.
Hon. Evan A. Evans, Circuit Judge.
Edward M. Holloway, Clerk.
John J. Bradley, Marshal.

No. 2525.

ECONOMY LIGHT AND POWER COMPANY

vs.

UNITED STATES OF AMERICA.

Appeal from the District Court of the United States for the Northern District of Illinois, Eastern Division.

It is ordered by the Court that this cause be, and the same is hereby set down for hearing on October 29, 1918.

No. 2525.

ECONOMY LIGHT AND POWER COMPANY

vs.

UNITED STATES OF AMERICA.

Appeal from the District Court of the United States for the Northern District of Illinois, Eastern Division.

Upon application of counsel for appellant, It is ordered by the Court that counsel for appellant may file a reply brief on or before October 25, 1918.

And afterwards, to-wit: On the seventeenth day of October, 1918, in the October term last aforesaid, the following further proceedings were had and entered of record, to-wit:

THURSDAY, October 17, 1918.

Court met pursuant to adjournment and was opened by proclamation of crier:

Present:

Hon. Francis E. Baker, Circuit Judge, presiding.
Hon. Julian W. Mack, Circuit Judge.
Hon. Samuel Alschuler, Circuit Judge.
Edw. M. Holloway, Clerk.
John J. Bradley, Marshal.

2525.

ECONOMY LIGHT AND POWER COMPANY

vs.

UNITED STATES OF AMERICA.

Appeal from the District Court of the United States for the Northern District of Illinois, Eastern Division.

It is ordered by the Court that this cause be, and the same is hereby re-set down for hearing on November 6, 1918, and that appellant file a reply brief by November 1, 1918.

And afterwards, to-wit: On the sixth day of November, 1918, in the October term last aforesaid, there was filed in the office of the

Clerk of this Court a certain Motion, which said Motion is in the words and figures following, to-wit:

In the United States Circuit Court of Appeals for the Seventh Circuit, October Term, A. D. 1917.

No. 2525.

ECONOMY LIGHT AND POWER COMPANY, Appellant,

vs.

UNITED STATES OF AMERICA, Appellee.

Motion of Appellee for Leave to File Printed Answer to Reply of Appellant.

Now comes the appellee by its counsel and moves the Court for leave to file a printed answer to "Reply Brief for Appellant and Analysis of Appellee's "Synopsis of the Evidence," within such time as may be agreeable to the Court, and in the alternative for leave to file an answer to so much of said document as constitutes an "Analysis of Appellee's Synopsis of the Evidence," and for ground of such motion shows: 1. That appellant in its *prief* presents no statement, analysis, review, or synopsis of the evidence in this cause, and the burden of preparing such a review therefore fell upon appellee. The appellant devotes a large portion of its reply to criticism of appellee's review of the evidence.

Appellant's reply came into the hands of the appellee's counsel on the morning of November 3rd, and as the argument is set for November 6th at 10 o'clock, sufficient time does not intervene to permit appellee's counsel to file a printed answer.

2. In the ordinary course a review of the evidence should have been presented by appellant. This would have given appellee an opportunity to criticise and supplement it and appellant an opportunity to reply to any criticism.

3. By failing to follow this course appellant under the rules prevents appellee from replying to appellant's criticism of its review of the evidence.

Respectfully submitted,

CHARLES F. CLYNE,
United States Attorney;
CLARENCE N. GOODWIN,
Special Assistant to the United States Attorney General,
Counsel for Appellee.

Received a copy of the foregoing motion this 6th day of November, A. D. 1918, before the hour of 10 o'clock.

FRANK H. SCOTT,
Counsel for Appellant.

Endorsed: Filed Nov. 6, 1918. Edward M. Holloway, Clerk.

And afterwards, on the same day, to-wit: On the sixth day of November, 1918, in the October term last aforesaid, the following further proceedings were had and entered of record, to-wit:

WEDNESDAY, November 6, 1918.

Court met pursuant to adjournment and was opened by proclamation of crier.

Present:

Hon. Francis E. Baker, Circuit Judge, presiding.
Hon. Evan A. Evans, Circuit Judge.
Hon. Arthur L. Sanborn, District Judge.
Edward M. Holloway, Clerk.
John J. Bradley, Marshal.

2525.

ECONOMY LIGHT AND POWER COMPANY

vs.

UNITED STATES OF AMERICA.

Appeal from the District Court of the United States for the Northern District of Illinois, Eastern Division

Upon motion of counsel for appellee Clarence N. Goodwin, it is ordered by the Court that the appellee may file a reply brief in this cause within ten days from this date.

No. 2525.

ECONOMY LIGHT AND POWER COMPANY

vs.

UNITED STATES OF AMERICA.

Appeal from the District Court of the United States for the Northern District of Illinois, Eastern Division.

Now this day come the parties by their counsel and this cause now comes on to be heard on the printed record and briefs of counsel and on oral arguments by Mr. Frank H. Scott, counsel for appellant, and by Mr. Clarence N. Goodwin, counsel for appellee, and the Court having heard the same takes this matter under advisement.

And afterwards, to-wit: On the twenty-first day of January, 1919, in the October term last aforesaid, there was filed in the office of the Clerk of this Court the Opinion of the Court, which said Opinion is in the words and figures following, to-wit:

In the United States Circuit Court of Appeals for the Seventh Circuit, October Term and Session, 1917.

No. 2525.

ECONOMY LIGHT AND POWER COMPANY, Appellant,

vs.

THE UNITED STATES, Appellee.

Appeal from the District Court of the United States for the Northern District of Illinois, Eastern Division.

Before Baker and Evans, Circuit Judges, and Sanborn, District Judge.

December 14, 1909, the United States filed its bill of complaint against the Economy Light and Power Company alleging that said company had without the consent of Congress and without authority of the legislature of Illinois commenced the construction of a dam in the Desplaines River at a point in Grundy County, Illinois, and that the portion of the Desplaines River in which the construction of the dam had been commenced was navigable water of the United States, and praying the court to order, adjudge and decree said Desplaines River to be a navigable river and one of the navigable waters of the United States; that the portion of the dam constructed be held to be in violation of the provisions of section 9 of the Act of March 3, 1899, and ordering its removal, and that the defendants and its officers and agents and all persons acting under them be enjoined perpetually from placing any further obstruction in said river, and from doing any other act or performing any other work in connection with the construction of said dam.

On February 28, 1910, the defendant filed its answer, admitting the commencement of the construction of a dam as alleged, but denying the navigability of the portion of the Desplaines River in which said dam was being constructed. A very large amount of evidence was taken, the abstract containing 3186 printed pages.

From a decree entered May 25, 1917, perpetually enjoining the defendant, its officers, agents, &c., as prayed, defendant appeals.

Opinion by Sanborn, District Judge.

The Desplaines up to 1894. The Chicago-Desplaines-Illinois water route, used from 1673 to 1825 by explorers and in the fur trade, was made up of portions of the Chicago and Desplaines rivers, now some eight miles apart. It includes the Chicago River from its mouth on Lake Michigan to Robey street, Chicago, on the west fork of the south branch, thence westerly, by water or portage, to Mud Lake, about two miles, thence to the Desplaines near Riverside, two miles, down the river to the Illinois, made by the confluence of the Desplaines and Kankakee. The part of this route between the Chicago and Desplaines is called the Chicago divide. The Desplaines River

rises near the county line between Racine and Kenosha counties, Wisconsin, and runs in a southerly direction, parallel substantially to the west shore of Lake Michigan, through Lake and Cook counties, Illinois, until it reaches Riverside, some 11 miles from the mouth of the Chicago River; thence it takes a southerly direction through Cook and Will counties to its confluence with the Kankakee River near the east line of Grundy County. The original area of the Desplaines River basin was 1428 square miles, and with the changes which have been made the present area is taken at 1392 square miles. The Desplaines River basin is usually divided into the Upper Desplaines and the Lower Desplaines, the term Upper Desplaines applying to that portion above Riverside. The Upper Desplaines basin has an area of 633 square miles, a general length of about 60 miles, and a general width of about 10 miles, and is a true basin; has practically no true tributary basins, except Salt Creek which has about 110 miles, entering at Riverside. It is a rolling country, originally covered with one-half to one-third in timber. Its general declivity by its flood plane is about one and a half feet per mile. The river bed is cut as a groove in a prairie, rather than the ordinary river bed, with an overflow or flood plane on either side. Originally it had a considerable quantity of swamp, marsh and bog at head waters; and in Lake County and in portions of Cook County and also upon Salt Creek in Du Page County; and a lake development in Lake County from which that county derives its name.

The characteristics of the Lower Desplaines basin, that portion below Lyons or Riverside, are that it covers by the general course of the valley about 42 miles to the confluence with the Kankakee, and has a total descent of about 102 or 103 feet. It has a true sub-basin in the Du Page River which covers 366 square miles. The total area is 795 square miles below Riverside, but outside of the Du Page River this area is only 429 miles. The valley in itself is not a characteristic valley like the Upper Desplaines, but has the appearance of being an old water course or outlet from the great lakes in which the modern stream follows through remnants of an ancient stream of much greater magnitude, a succession of pools and wide expanses with intermediate channels, which have not yet developed to their proper proportions, connecting these pools and water stretches. The river valley or river has two considerable tributaries aside from the Du Page, in Hickory Creek and Jackson Creek, but otherwise the drainage is essentially marginal or shore drainage.

Beginning within a mile of the township line between Riverside and Lyons is a long level expanse known as the twelve mile level, consisting of a succession of water expanses and connecting straits or channels from 150 feet up to a quarter or an eighth of a mile in width, in places, and with varying depths up to 10 or 15 feet in localities; these water expanses having a mud bottom which seem to be more vegetable deposits than alluvial, and which indicate originally much greater depth; and margined in by a vegetable growth. These expanses were for a long time used as ice fields by the ice interests which had their market in Chicago. Below the twelve mile level is a succession of ponds and shallow connections in the rock, like Goose Lake and Round Lake, and others between Romeo and the twelve mile level. This whole stretch is well described in the

original land survey as a succession of swamps, pods, lakes and marshes connected by currents.

Below Romeo, which is 6 miles below Lyons, there is a declivity at the rate of 7 feet per mile from the Romeo highway down to the head of Lake Joliet, a distance of 11 miles, pretty uniformly distributed. Thence for a distance of about 13 miles between that and the mouth of the river there are some 10 miles occupied by pools, or Lake Joliet, which has a length of nearly 6 miles and has a width of 500 to 900 feet, and a depth originally up to 15 or 20 feet; and then a pool of over a mile in length immediately below Treat's Island rapids; then Lake Du Page, some 13 miles in length, with a width of about 350 feet on the average, and with a depth of 10 feet and upwards, these pools being connected by intermediate rapids like the one at Treat's Island and the one near the mouth of the Kankakee, and the reach of swifter and shallower water between the pool below Treat's Island and the head of Lake Du Page. These distances are given only approximately, and to show some *some* of the characteristics of the stream. This description applies to the Desplaines River as it was known up to about 1894, when the Sanitary District works changed the conditions very radically through the valley above the city of Joliet, between there and Lyons or Riverside. The proportion of the Desplaines River itself from the end of the portage road to its mouth, or confluence with the Kankakee, that would consist of pools, would be about 60 per cent. The total distance from the portage road to the confluence with the Kankakee is about 44.5 miles. In that distance there would be the so-called 12 mile level, which is 13.7 miles, Lake Joliet, the pool below Treat's Island, and Lake Du Page, aggregating 10 miles, and Goose Lake and Round Lake, and some other stretches unnamed, amounting in all to about 27 or 28 miles out of a total of 44.5. The distance from dam No. 1 to the mouth of the river is 15.72 miles, of which about 10 miles consists of pools. This stretch is now more particularly in question. The condition of these pools if the Desplaines River were to run dry, that is, no water pass from pool to pool, would be that Lake Joliet would be practically available for boats as before, the depth in it being from 20 to 25 feet at the maximum, and a large proportion of it having more than 10 feet.

The distance from Lake Michigan to the mouth of the Desplaines River is 58.32 miles, made up as follows:

From Lake Michigan to Ashland Avenue, which is substantially at the forks of the south branch of the Chicago River	5.5	miles
Ashland Avenue to Ogden dam, which is across the old portage slough, on the range line, R. 12, 13, north of Summit	8.3	
The so-called 12 mile level, actual length	13.7	
From 12 mile level to Isle la Cache	6.7	
Isle la Cache to dam No. 1	8.4	
Dam No. 1 to head of Lake Joliet	3.	
Head of Lake Joliet to the mouth of Desplaines River	12.72	
	58.32	

A gauge record kept at Riverside for a period of 20 years from the year 1886 to 1904, both inclusive, showed the water stood at above 18 feet on the Riverside gauge an average of 4.3 days per year; at or above 13.8 feet an average of 47.6 days per year; at or above 13 feet an average of 73.2 days per year; at an elevation of 12.4 feet an average of 116.2 days per year; at or above 11.85 feet an average of 190.65 days per year.

When the water stood at 10.5 at the head of the 12 mile level at Summit, corresponding to 13 feet on the Riverside gauge, and a volume of 600 second feet, the water in the portage swamp and channels connecting with the Desplaines River would be flowing over to the Chicago River to the extent of the capacity of the trench that existed below this level. During the 20 year period referred to water would have flowed over the Chicago divide on an average of 73.2 days per year.

At all elevations when the water at Summit stood at 11.73 or above, corresponding to an elevation of 13.8 on the Riverside gauge, and to a volume of 1052 second feet, a boat drawing 15 inches of water could pass from the Desplaines River across the Mud Lake region and over the continental divide and into the Chicago River without making any portage between them. Such condition would have prevailed during the 20 year period an average of 47.6 days per year.

At an elevation between 13.8 feet and 13 feet the water would gradually diminish in depth on the Chicago divide, and when a portage became first necessary it would be about one mile in length, and when it reached the level of 10.5 it would be two miles in length between the west fork at Western Avenue, Chicago, and the beginning of deep water in Mud Lake.

At an elevation between 13 feet and 12.4 feet on the Riverside gauge boats could no longer pass between Mud Lake and the Desplaines River except light, and be entirely stopped, and a portage of one or two miles would be required between Mud Lake and the Desplaines River, in addition to the portage of two miles between the west fork and Mud Lake. In this condition there would be a substantial navigable depth of 15 inches between Isle la Cache and Mount Juliet, a distance of 11 miles. Isle la Cache is located in the Desplaines River on the township line between the towns of Du Page and Lockport.

At an elevation between 12.4 feet and 11.85 feet on the Riverside gauge the Chicago divide would require the two portages mentioned, or the alternative of a 7 mile portage between the waters of the Chicago River and the Desplaines. The Desplaines would have a navigable depth of 12 to 15 inches, with possibly some deficiency in one or two localities; from Romeo down to the head of Lake Joliet there would be sufficient water for a boat at the higher stages to go down partially loaded, and at the lower stages to go down light, but at the lower stages the cargo itself would require a transfer over the 11 miles from Isle la Cache to Mount Juliet. All the river below Lake Joliet would be navigated by discharging the cargo in part or wholly at Treat's Island, and near the mouth of the river.

There has been no time when the Desplaines River ran absolutely dry and there was not any water passing from pool to pool except as it was artificially produced by the abstraction of water from the Desplaines either for canal purposes during the time in which the Desplaines was used in that connection as a feeder, or through the cutting down of the Chicago divide and the draining of the water towards Chicago at medium and low stages.

Changes in Desplaines River. Various changes have been made in the Desplaines River from its condition as it existed in a state of nature. The portage swamp region lying east of the range line at Summit has been drained and made tributary to the Chicago River, except so much as is tributary to the canal, this area amounting to 48 square miles. There has been added from the Sag region an area of about 12 square miles, making the change below Lemont 36 square miles to be deducted from the former areas. The deficiency of rainfall averaging 2.9 inches per year during the period of 20 years from 1887 to 1910, computed from the Riverside gauge, would produce a deficiency in run-off of probably 15 or 20 per cent., and the effect of that would be to diminish both the volume and duration for the stages of water exhibited in the table referred to. There is also a deficiency in the run-off due to the substantial clearing away of the forest-covered area of 5 per cent. There are changes which have affected the distribution of the run-off. The clearing away of the forests has destroyed an element of control which has diminished the control and the duration of the stages of water; and in addition the restriction of ponds and lakes and the drainage of wet lands, bogs and marshes, and particularly the destruction of a special control existing in the portage swamp region and 12 mile level, all of which under natural conditions prolong the stages of water.

There have been radical changes in reference to the depletion of the water in the Desplaines River from a state of nature. The first change of significance was due to the construction of the Illinois and Michigan Canal in 1848. The effect of the construction of that canal upon the water in the lower Desplaines was a reduction of the drainage of the river below the dams at Joliet to less than 250 square miles out of a total of 1428 square miles. Further interference arose from the fact that the location of the canal along the south and east side of the valley caused the hill drainage to be turned in part toward Chicago, and on the tangent between Summit and Bridgeport (in the southwestern part of Chicago) it ran across the south arm of Mud Lake, cutting off the drainage and reservoir control of that portion of the portage swamp region lying to the south of the canal. From 1866 to 1871 the Illinois and Michigan Canal was deepened, causing interference with the flow of the river. Further interference was caused by the construction of ditches in the Mud Lake region, and by the erection of pumping works at Bridgeport in 1883. Interference also occurred by reason of the construction of the river diversion by the Sanitary District in 1893-4, by which the Desplaines River was shifted to the west and north side of the valley so as to leave a site between the river as thus changed and the Illinois and Michigan Canal for the construction of the drainage canal itself. Interference has also been caused by inhabitation which has cut away forests, thus

curtailing the run-off, and there has been drainage of swamps and wet lands, and the destruction of ponds and lakes. The Sanitary and Ship Canal, which was completed in 1892, joins the Desplaines at Dam No. 1, 31.6 miles from Riverside, from which point its waters flow into and increase the current of the Desplaines.

These various changes have materially interfered with the flow of the river, and the conditions in the basin itself have been changed by the actual disposition of the flow. The Desplaines River has an impermeable soil bottom, and the control that was exercised was surface control largely. The destruction of this surface control has affected the flow of the water much more radically than would have been the case had the ground been permeable.

Use of Desplaines River. From the latter part of the seventeenth century through the first third of the nineteenth century men engaged in the fur trade passed up and down the Chicago and Desplaines rivers in canoes and flat boats very regularly. Fourteen specific instances of the use of the Desplaines down to the year 1830 are shown in the evidence, as follows: Trips to Chicago: Joliet and Marquette, 1673; Perrault, 1783; Joutel, 1688; Hubbard, 1819; Ebenezer Child, 1821; Tonty, 1680; La Salle, 1681; Fonda, 1825. Trips from Chicago: Father Membre, 1682; St. Cosme, 1698; Hubbard, 1818; Marquette, 1674; Howard, 1790; Furman, 1830. Very many other trips made during the same period, not so well authenticated, are disclosed in the evidence, and numerous historical references to the Chicago-Illinois route. No doubt other instances of its use may properly be inferred. It was employed by the American Fur Company down to 1825, and then abandoned for other routes. The trial judge found as the record shows, that there is no evidence of actual navigation within the memory of living men, and therefore there would be no present interference with navigation by the building of the proposed dam. But it was held that the evidence shows the Desplaines a navigable water of the United States, preserved as such by the legislation of Congress.

In the early days the fur trade was a leading branch of commerce in the western world, and this trade was one of the characteristics of the Desplaines River. Large quantities of supplies of various kinds needed by the settlers in a new country were also transported over the Desplaines during the same period in boats of the size and character then commonly used in river commerce, this transportation being carried on between Chicago, St. Louis and other points. Canoes of several tons burden were used; some were 35 feet long by 6 feet wide, some 33 feet long by 4½ feet wide, worked by paddles and occasionally a sail, and had a crew of eight men, carrying as much as 6,000 pounds of freight as well as 1,000 pounds of provisions. The pirogues were manned by six or seven oars; the bateaux were larger than the pirogues; the Durham boats were heavy freight craft, 60 feet long, 8 feet wide, 2 feet deep, with a capacity of 15 tons, drawing 20 inches of water.

Commerce of this character existed until about the year 1825. After that year the fur trade having receded to interior portions of Illinois was reached more generally by horses. After the year 1848, when the Illinois and Michigan Canal was constructed, commerce

that had formerly been carried on the Desplaines River was carried on the canal. Radical changes had taken place in the condition of the river as heretofore shown, which resulted in a diminution of the flow in the river, and this was one of the causes for the non-use of the river.

Up to 1889 several dams had been built across the Desplaines River, to wit: Daggett's Mill, one half mile below Lockport; dam No. 1, 10 feet high, belonging to the state, Joliet; dam No. 2, 8 feet high, one-half mile below dam No. 1, also belonging to the state; Adams dam, 6 feet high, and less than a half mile below dam No. 2. Formerly a dam existed at the foot of Lake Joliet at Treat's Island, and also one at the foot of Lake Du Page. These have long been abandoned. There are at the present time no dams in the Desplaines between dam No. 1 and the mouth of the river. Some of these dams were constructed as early as the year 1835, and their existence in the river was a source of obstruction to the commerce that had formerly been carried on. There are also a considerable number of bridges of various kinds across the river.

Is the river navigable within the Act of 1899? The main question in the case is whether the evidence shows the Desplaines a navigable stream of the United States, or one capable of bearing interstate commerce via the Illinois and Mississippi, at the time of the passage of the acts of 1890 and 1899. If the river be decided navigable in fact, though not used for navigation, the further question is whether the words "navigable river, or other navigable water of the United States" includes a stream of navigable capacity, but not actually used in transportation for the past seventy-five years. In other words does the Act of 1899 refer only to streams then actually used for interstate commerce, or as well to rivers formerly navigated, like the Wisconsin, Rock, and hundreds of other streams of perfect navigable capacity, but whose use long ago ceased as an instrument of commerce (except for water powers)?

The Act of 1890 provides that dams or other structures in navigable waters of the United States shall not be built without authority of the Secretary of War; and the Act of 1899 that when such navigable waters are wholly within a state, such structures may be built under authority of the state legislature if the plans are submitted to and approved by the Chief of Engineers and the Secretary of War. Under this legislation it has been established that dams or other structures may be built only by joint assent of the national and state governments. The effect of the Act of 1899, "reasonably interpreted, is to make the erection of a structure in a navigable river, within the limits of a state, dependent upon the concurrent or joint assent of both the national government and the state government. The Secretary of War, acting under the authority conferred by Congress, may assent to the erection by private parties of such a structure. Without such assent the structure cannot be erected by them. But under existing legislation they must, before proceeding under such authority, obtain also the assent of the state acting by its constituted agencies." Cummings v. Chicago, 188 U. S. 410, 47 L. Ed. 525, approved in Going v. Ives, 222 U. S. 370, 56 L. Ed. 235, Simpson v. Shepard, 230 U. S. 352, 408, 57 L. Ed. 1511, 1543, Montgomery v.

Portland, 190 U. S. 89, 23 S. C. 735, 47 L. Ed. 765. See also Cobb v. Lincoln Park, 202 Ill. 427, 67 N. E. 5, 95 A. S. R. 258, 63 L. R. A. 264.

It is argued that the Act of 1899 was passed under the constitutional power to regulate interstate commerce, and as no such commerce on the Desplaines then existed the statute can have no application; and that if the statute be construed to reach beyond this it was to that extent beyond the legislative power. Even so it might be sustained under the war power. We have lately had a significant reminder of the inadequacy of railroad transportation in a time of stress.

But however this may be, we think streams of actual navigable capacity, but not now used for interstate commerce, are within congressional power to preserve for purposes of future transportation, and that the Act of 1899 applies to such streams. If this is not the proper construction very few interstate streams are within its terms. The Wisconsin River, that great water route of early times between the St. Lawrence and the Mississippi, could be destroyed if the state permitted. The Rock River in Wisconsin and Illinois, a stream in its natural state completely navigable from Lake Koshkonong to the Mississippi, would be under no government protection however important for future need. It might be covered with business blocks in cities lying upon it, as was permitted by the Wisconsin Supreme Court in State v. Carpenter, 68 Wis. 65, 60 Am. Rep. 848. Hundreds of like streams, immensely important to the future welfare of the country, on this theory could never come within the reach of congressional power, except possibly through restoration by the states. We are unwilling to assent to this narrow view of the purpose of the Act of 1899, and think it should be construed to refer to navigable capacity (which is the test of navigable water), and not rigidly restricted to streams floating interstate or foreign commerce at the time of its passage. The question has never been decided by the Supreme Court or other federal tribunal.

The disposition of this case upon these facts may therefore well be narrowed down to the question, Was the Desplaines River navigable in its natural condition?

The purpose of the provision referred to in the Ordinance of 1787 was not to declare or make the Desplaines River, or other waterways within the ceded territory, navigable waters of the United States, but only to define rights which depend on its existence. Illinois v. Economy Light & Power Co., 234 U. S. 497, 523, — Sup. Ct. —, — L. Ed. —. A further purpose was to retain forever the free and unrestricted use to the people of the country of any and all waterways then known to be navigable, or waterways that might thereafter be used by the people in the more remote parts of the country, for the purposes of commerce. In respect to waterways no additional power was granted by the ordinance to the newly created territory, either at the time of the cession or in 1818, when Illinois was admitted to the Union, over the power held by the original thirteen states, and the United States relinquished or lost none of its original power and control over the specific things included within its jurisdiction, one of the most important of which was the waterways.

The purpose of the Ordinance of 1787 is clearly stated by the court in The Montello, 20 Wall. 430, 444, — L. Ed. —, "to preserve the national character of all the rivers leading into the Mississippi and St. Lawrence, and to prevent a monopoly of their waters, was the purpose of the Ordinance of 1787, declaring them to be free to the public." It is immaterial to inquire whether the ordinance is still in force, or was superseded by the Illinois enabling act, or the act of admission, because the same principle is preserved in those statutes, and in the Illinois constitution. It is very evident that from the earliest days the intention of Congress has been to retain in the public for all time the right to the use of streams of navigable capacity. The Act of Congress of May 18, 1796, entitled "An Act providing for the sale of lands of the United States in the territory northwest of the River Ohio, and above the mouth of the Kentucky River," provides in section 9:

"And be it further enacted, that all navigable rivers within the territory to be disposed of by virtue of this Act, shall be deemed to be, and remain public highways."

The Act of Congress of March 26, 1804, entitled "An Act making provision for the disposal of public lands in the Indian Territory, and for other purposes," provides in section 6:

"That all navigable rivers, creeks and waters, within the Indian Territory, shall be deemed to be and remain public highways."

The contention of counsel for appellant that the carrying places between the streams cannot be held to be within the intent of Congress in preserving the right to the use of navigable streams, is not material in this case, for the reason that in the progress and improvement in the means and methods of transporting commerce those carrying places have become unnecessary. The fur trader of the early days had but one way to make his trip from Chicago to St. Louis; the waterways and the carrying places between. But the fact that changing methods have dispensed with the necessity for using the carrying places does not lessen in any degree the value of the navigable portions of the streams. It is also to be noted that the statutes of 1796 and 1804 referred to do not mention carrying places, but only refer to the waterways. If the carrying places were deemed of equal importance with the waterways they would undoubtedly have been mentioned in these acts.

In the leading case of The Montello, 87 U. S. 430, 22 L. Ed. 391, the court said at p. 441:

"And, independently of the Ordinance of 1787, declaring the 'navigable waters' leading into the Mississippi and St. Lawrence to be 'common highways,' the true test of the navigability of a stream does not depend on the mode by which commerce is, or may be, conducted, nor the difficulties attending navigation. If this were so, the public would be deprived of the use of many of the large rivers of the country over which rafts of lumber of great value are constantly taken to market.

It would be a narrow rule to hold that in this country, unless a river was capable of being navigated by steam or sail vessels, it could not be treated as a public highway. The capability of use by

the public for purposes of transportation and commerce affords the true criterion of the navigability of a river, rather than the extent and manner of that use. If it be capable in its natural state of being used for purposes of commerce, no matter in what mode the commerce may be conducted, it is navigable in fact, and becomes in law a public river or highway. Vessels of any kind that can float upon the water, whether propelled by animal power, by the wind, or by the agency of steam, are, or may become, the mode by which a vast commerce can be conducted, and it would be a mischievous rule that would exclude either in determining the navigability of a river. It is not, however, as Chief Justice Shaw said, (21 Pick. 344) 'every small creek in which a fishing skiff or gunning canoe can be made to float at high water which is deemed navigable, but, in order to give it the character of a navigable stream, it must be generally and commonly useful to some purpose of trade or agriculture.' * * * But the vital and essential point is whether the natural navigation of the river is such that it affords a channel for useful Commerce. If this be so the river is navigable in fact, although its navigation may be encompassed with difficulties by reason of natural barriers, such as rapids and sand bars."

In Miller v. Mayor of New York, 109 U. S. 385, 3 Sup. Ct. 228, 27 L. Ed. 971, the court said at p. 395:

"The power vested in Congress to regulate commerce with foreign nations and among the several states includes the control of the navigable waters of the United States so far as may be necessary to insure their free navigation; and by 'navigable waters' are meant such as are navigable in fact, and which by themselves or their connection with other waters form a continuous channel for commerce with foreign countries or among the states." Citing The Daniel Ball, 10 Wall. 557.

In The Daniel Ball, 10 Wall. 557, 19 L. Ed. 999, the court said at p. 563:

"Those rivers must be regarded as navigable rivers in law which are navigable in fact. And they are navigable in fact when they are used, or are susceptible of being used, in their ordinary condition, as highways for commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water. And they constitute navigable waters of the states, when they form in their ordinary conditions by themselves, or by uniting with other waters, a continued highway over which commerce is or may be carried on with other states or foreign countries in the customary modes in which such commerce is conducted by water."

In St. Anthony Falls Water Power Co. v. Board of Commissioners, 168 U. S. 349, 18 Sup. Ct. 157, 42 L. Ed. 497, the Mississippi River at and above St. Anthony Falls, Minneapolis, was held navigable. The court say:

"In order to be navigable it is not necessary that it should be deep enough to admit the passage of boats on all portions of the stream."

Navigability does not depend on the amount of tonnage, depth of water, width of the stream, nor the use at some time for com-

merce. Navigability is determined by natural conditions. Gaston v. Mace, 33 W. Va. 14, 10 S. E. 60, 5 L. R. A. 392, 25 Am. St. 848. Neither character of craft nor relative ease or difficulty of navigation are tests of navigability. State v. Pacific Guano Co., 22 S. C. 50. "The test of navigability is navigable capacity without regard to the character of the craft, the business done, the ease of navigation, the surroundings of the stream." Heyward v. Farmers Mining Co., 42 S. C. 139, 19 S. E. 963, 28 L. R. A. 42, 46 Am. St. 742. In Stratton v. Currier, 81 Mo. 497, the court held as correct an instruction that the stream being of sufficient capacity to float logs, the public had a right to its use for that purpose. So in this case, the Desplaines River having the capacity to carry interstate and foreign commerce, the public has the right to its use. In Moore v. Sanborne, 11 Mich. 519, the court holds that navigability consists in the capacity for valuable floatage. This case also holds that the Ordinance of 1787 supersedes the common law doctrine of the necessity of usage or custom to establish a public right. In Burroughs v. Whitwam, 59 Mich. 279, the court held that the Ordinance of 1787 was intended to apply to such streams as were then common highways for canoes or batteaux in the commerce between the northwestern wilderness and the settled portions of the United States and foreign countries, and to such rivers not then in use as would by law be embraced in the definition of navigable waters. In Ten Eyck v. Town of Warwick, 27 N. Y. Supp. 536, 75 Hun 562, the court follows the reasoning in many of the cases cited, and says at page 539: "That is, streams must be capable, in their natural condition, of floating commodities to market," citing and quoting Morgan v. King, 35 N. Y. 461. In the latter case the court said:

"The true rule is that the public have a right of way in every stream which is capable, in its natural state and its ordinary volume of water, of transporting, in a condition fit for market, the products of the forests or mines, or of the tillage of the soil upon its banks. * * * Nor is it essential to the easement that the capacity of the stream, as above defined, should be continuous, or, in other words, that its ordinary state, at all seasons of the year, should be such as to make it navigable. It is ordinarily subject to periodical fluctuations in the volume and height of its water, attributable to natural causes, and recurring as regularly as the seasons, and if its periods of high water or navigable capacity ordinarily continue a sufficient length of time to make it useful as a highway, it is subject to the public easement."

In Wadsworth, Admr. v. Smith, 11 Me. 278, it is held:

"Those (streams) which are sufficiently large to bear boats or barges, or to be of public use in the transportation of property, are highways by water, over which the public have a common right."

In Brown v. Chadbourne, 31 Me. 11, the court at p. 22 said:

"A distinguishing criterion consists in the fitness to answer the wants of those, whose business require its use. Its perfect adaption to such use may not exist at all times, although the right to it may continue, and be exercised whenever an opportunity occurs. In

many rivers, where the tide ebbs and flows, the public are deprived of their use for navigation during the reflux of their waters. A way, over which one has a right to pass, may be periodically covered with water. In high northern latitudes, most fresh water rivers are frozen over during several months of the year."

The statement "A way, over which one has a right to pass may be periodically covered with water," gives rise to the suggestion that a river in the latitude of the Desplaines is ordinarily frozen over during some of the winter months; and in a new country where the roads, if any, are very poor and inadequate, such a river would afford an excellent highway, at least in many places, for teams drawing sleighs. In Lewis v. Coffey County, 77 Ala., 190, the court said at p. 193:

"We do not understand, that to constitute a navigable stream it is requisite there shall be sufficient water for the common uses of trade and commerce during all seasons of the year. It must, however, as the results of natural causes, be capable of valuable floatage periodically during the year, and so continue long enough at each period to make it susceptible of beneficial use to the public."

The same doctrine is announced in Morrison Bro. & Co. v. Coleman, 87 Ala. 655. In Little Rock, &c., R. R. v. Brooks, 43 Am. Rep. 277, (39 Ark. 463) the court after discussing the question of what constitutes navigable capacity, says:

"The true criterion is the dictate of sound business common sense, and depends on the usefulness of the stream to the population of its banks, as a means of carrying off the products of their fields and forests, or bringing to them articles of merchandise. If in its natural state, without artificial means, it may be prudently relied upon and used for that purpose at some seasons of the year, recurring with tolerable regularity, then, in the American sense, it is navigable, although the annual time may not be very long. Products may be ready and boats prepared, and it may thus become a very great convenience and materially promote the comfort, and advance the prosperity of the community."

Carter v. Thurston, 42 Am. Rep. 584 (58 N. H. 104).

In East Hoquiam Boom & Logging Co. v. Neeson et al., 54 Pac. Rep. 1001, 20 Wash. 142, the court holds it to be well settled that a stream which can only be made navigable or floatable by artificial means is not a public highway, citing a number of cases. In Kamm v. Normand, 91 Pac. Rep. 448 (50 Ore. 9) the court after an extensive review of the authorities, holds that a stream to be navigable or floatable for saw logs must be capable in its natural condition at ordinary recurring freshets of being successfully and profitably used for that purpose.

Under these authorities it seems clear that the Desplaines River having been used as an interstate highway of commerce from 1673 to 1825 in the only kind of commerce then existing, is to be deemed of navigable capacity and a navigable stream within the Ordinance of 1787 and the acts of Congress of May 18, 1796 and March 26, 1804, by which Congress specifically took jurisdiction over navigable

streams and declared that they should forever remain public highways. The river is a continuous stretch of water from Riverside to its mouth, and although there is a rapid, and in places shallow water, with boulders and obstructions, yet these things do not affect its navigable capacity. The same may be said of the upper part of the Illinois River above the head of steamboat navigation. We have no hesitation in deciding that both streams are navigable and are within the Act of 1899.

The only hesitation we have had in this case is on account of the decision of the Supreme Court of Illinois in Illinois v. Economy Light and Power Co., 241 Ill., 290, 89 N. E. 760. The difference in the records in the two cases would not perhaps warrant a different conclusion, although the evidence here is somewhat stronger in favor of navigability than in that case. Taking as we do a different view as to the force and effect of the historical accounts of the early use of the river, and being clear that it is in fact a navigable stream, we feel that we should follow our own views.

Decree affirmed.

A true Copy.

Teste: —— ——,

Clerk of the United States Circuit Court
of Appeals for the Seventh Circuit.

And afterwards, on the same day, to-wit: On the twenty-first day of January, 1919, in the October term last aforesaid, the following further proceedings were had and entered of record, to-wit:

TUESDAY, January 21, 1919.

Court met pursuant to adjournment and was opened by proclamation of crier.

Present:

Hon. Francis E. Baker, Circuit Judge, presiding.
Hon. Julian W. Mack, Circuit Judge.
Hon. Samuel Alschuler, Circuit Judge.
Hon. Evan A. Evans, Circuit Judge.
Edward M. Holloway, Clerk.
John J. Bradley, Marshal.

Before:

Hon. Francis E. Baker, Circuit Judge.
Hon. Evan A. Evans, Circuit Judge.
Hon. Arthur L. Sanborn, District Judge.

2525.

ECONOMY LIGHT AND POWER COMPANY

vs.

THE UNITED STATES OF AMERICA.

Appeal from the District Court of the United States for the Northern District of Illinois, Eastern Division.

This cause came on to be heard on the transcript of the record from the District Court of the United States for the Northern District of Illinois, Eastern Division, and was argued by counsel.

On consideration whereof, It is now here ordered, adjudged and decreed by this Court that the decree of the said District Court in this cause be, and the same is hereby affirmed.

And afterwards, to-wit: On the twentieth day of February, 1919, in the October term last aforesaid, there was filed in the office of the Clerk of this Court a certain Notice, which said Notice is in the words and figures following, to-wit:

In the United States Circuit Court of Appeals for the Seventh Circuit.

No. 2525.

ECONOMY LIGHT AND POWER COMPANY, a Corporation, Appellant,

vs.

UNITED STATES OF AMERICA, Appellee.

To Messrs. Charles F. Clyne and Clarence N. Goodwin, Solicitors for Appellee:

You are hereby notified that on the 20th day of February, 1919, at the hour of 11 o'clock A. M., or as soon thereafter as counsel can be heard, we shall appear before the United States Circuit Court of Appeals in chambers and pray an appeal from the judgment of that Court entered in the above entitled cause on the 21st day of January, 1919, to the Supreme Court of the United States, and shall present and file the following papers, copies of which are herewith served upon you:

1. Petition for appeal,
2. Order allowing appeal,
3. Assignment of errors,
4. Citation,

at which time and place you may appear if you so desire.

FRANK H. SCOTT,
Solicitor for Economy Light & Power Company, Appellant.

Received a copy of the above notice and of the papers therein mentioned this 19th day of February, 1919.

CLARENCE N. GOODWIN,
CHARLES F. CLYNE,
Solicitors for Appellee.

Endorsed: Filed Feb. 20, 1919. Edward M. Holloway, Clerk.

And afterwards, on the same day, to-wit: On the twentieth day of February, 1919, in the October term last aforesaid, there was filed in the office of the Clerk of this Court a certain Petition for Appeal, which said Petition for Appeal is in the words and figures following, to-wit:

In the United States Circuit Court of Appeals for the Seventh Circuit.

No. 2525.

ECONOMY LIGHT AND POWER COMPANY, a Corporation, Appellant,

vs.

UNITED STATES OF AMERICA, Appellee.

Petition for Appeal.

The above named appellant, Economy Light & Power Company, conceiving itself aggrieved by the judgment of the United States Court of Appeals for the Seventh Circuit, made and entered in the above entitled cause on the 21st day of January, 1919, and by the decree of the District Court of the United States for the Eastern Division of the Northern District of Illinois thereby affirmed, does hereby appeal from said judgment of said Circuit Court of Appeals to the Supreme Court of the United States, for the reasons specified in the assignment of errors filed herein, and prays that this appeal may be allowed and that a transcript of the record, papers and proceedings upon which said judgment was made, may be sent to the Clerk of the Supreme Court of the United States at Washington, D. C.

FRANK H. SCOTT,
Solicitor for Appellant,
Economy Light & Power Company.

Endorsed: Filed Feb. 20, 1919. Edward M. Holloway, Clerk.

And afterwards, on the same day, to-wit: On the twentieth day of February, 1919, in the October term last aforesaid, there was filed in the office of the Clerk of this Court a certain Assignment of Errors, which said Assignment of Errors is in the words and figures following, to-wit:

In the United States Circuit Court of Appeals for the Seventh Circuit.

No. 2525.

ECONOMY LIGHT AND POWER COMPANY, a Corporation, Appellant,

vs.

UNITED STATES OF AMERICA, Appellee.

Assignment of Errors.

The Economy Light & Power Company, appellant in the above entitled cause, says that in the record and proceedings therein and in the judgment of the Circuit Court of Appeals for the Seventh Circuit entered therein on the 21st day of January, 1919, manifest error has occurred to the prejudice of the said appellant and it assigns for error the following:

1. Said Circuit Court of Appeals for the Seventh Circuit erred in affirming the decree of the United States District Court for the Eastern Division of the Northern District of Illinois of May 25, 1917.

2. Said Circuit Court of Appeals erred in not reversing said decree of said United States District Court for the errors assigned upon the record in said cause.

3. Said Circuit Court of Appeals erred in holding that the Desplaines River was a navigable stream in its natural condition.

4. Said Circuit Court of Appeals erred in holding that the Desplaines River is now a navigable stream.

5. Said Circuit Court of Appeals erred in holding that the Desplaines River is a navigable water of the United States.

6. Said Circuit Court of Appeals erred in holding that from the latter part of the Seventeenth Century to the first part of the Nineteenth Century men engaged in the fur trade passed up and down the Desplaines River in canoes and flat boats regularly and that such passage constituted commerce.

7. Said Circuit Court of Appeals erred in holding that supplies of various kinds needed by the settlers were transported over the Desplaines River during the period preceding 1825 and that commerce existed upon said river until the year 1825.

8. Said Circuit Court of Appeals erred in not reversing the decree of said United States District Court, upon the ground that the Desplaines River was not navigable in its natural condition.

9. Said Circuit Court of Appeals erred in not reversing the decree of the said United States District Court upon the ground that the Desplaines River is not now navigable.

10. Said Circuit Court of Appeals erred in not reversing the decree of the said United States District Court upon the ground that the Desplaines River is not now navigable.

11. Said Circuit Court of Appeals erred in not reversing the decree of the said United States District Court upon the ground that the Desplaines River is not, in fact, capable of navigation for purposes of useful commerce, and that neither Section 8 of Article I of the Constitution of the United States, nor the Act of Congress of March

3, 1899, nor any other Act of Congress is applicable to said stream.

12. Said Circuit Court of Appeals erred in holding that the Act of March 3, 1899, applies to streams capable of navigation but upon which no commerce exists.

13. Said Circuit Court of Appeals erred in holding that the power of Congress to regulate Interstate Commerce does not depend upon the Commerce Clause of the United States Constitution, but may be sustained under the War Power.

14. The said Circuit Court of Appeals erred in holding that the Act of March 3, 1899, applies to streams not navigable at the time of the passage of said Act.

15. The said Circuit Court of Appeals erred in holding that the Act of March 3, 1899, applies to streams upon which no commerce existed at the time of the passage of said Act.

16. The Act of March 3, 1899, as construed and applied by said Circuit Court of Appeals to the Desplaines River would be unconstitutional.

17. Said Circuit Court of Appeals erred in holding that the ordinance of 1787 was preserved in the Constitution of Illinois.

18. Said Circuit Court of Appeals erred in holding that the ordinance of 1787 supersedes the common law doctrine of the necessity of use or custom to establish a public right of highway in streams.

19. Said Circuit Court of Appeals erred in holding that Section 9 of the Act of Congress of May 18, 1796, entitled, "An Act providing for the sale of lands of the United States in the territory Northwest of the River Ohio and above the mouth of the Kentucky River", and Section 6 of the Act of Congress of March 26, 1904, are applicable to the Desplaines River.

20. Said Circuit Court of Appeals erred in not holding that the Act of March 3, 1899, is not applicable to the Desplaines River.

21. Said Circuit Court of Appeals erred in not holding that the Commerce Clause of the United States Constitution does not give to Congress power to control by legislation streams upon which no commerce exists.

22. Said Circuit Court of Appeals erred in not holding that the Commerce Clause of the United States Constitution does not give to Congress power to control by legislation streams upon which no commerce existed at the date of the passage of such legislation.

23. Said Circuit Court of Appeals erred in not holding that the War Power does not give to Congress power to control by legislation streams upon which no commerce exists.

24. Said Circuit Court of Appeals erred in not holding that the War Power does not give to Congress power to control by legislation streams upon which no commerce existed at the date of the passage of such legislation.

25. Said Circuit Court of Appeals erred in not holding that under the Commerce Clause of the United States Constitution Congress only has power to legislate with reference to streams navigable by the standards of navigation existing at the date of such legislation.

26. Said Circuit Court of Appeals erred in not holding that the Act of March 3, 1899, applies only to streams which were navigable by standards of navigation existing at the date of the passage of said Act.

27. Said Circuit Court of Appeals erred in not reversing the decree of said United States District Court upon the ground that if the Act of March 3, 1899, or any other Act of Congress mentioned in appellee's bill of complaint or relied upon by appellee, applies to Desplaines River, said Acts are null and void under the provision of the 5th Amendment of the Constitution of the United States forbidding the taking of property without due process of law, and the taking of private property for public uses without just compensation.

28. Said Circuit Court of Appeals erred in not reversing the decree of said United States District Court upon the ground that if said Act of Congress of March 3, 1899, or any other of the Acts of Congress mentioned in appellee's bill of complaint or relied upon by appellee should be held to establish the character of said Desplaines River as navigable, then said Acts, and each of them, are and is, unconstitutional notwithstanding the ordinance of 1787, or any of the Acts of Congress for the government of the Northwest territory.

29. Said Circuit Court of Appeals erred in not reversing the decree of said United States District Court upon the ground that the United States is estopped from now claiming or contending that the Desplaines River is a navigable stream.

30. Said Circuit Court of Appeals erred in not applying the test of navigability laid down by the Courts of Illinois as to streams within said State.

31. Said Circuit Court of Appeals erred in not following the decision of the Supreme Court of Illinois in the case of People of the State of Illinois v. Economy Light & Power Company and reversing the decree of said District Court of the United States upon the ground that said judgment of the Supreme Court of Grundy County thereby affirmed was a judgment in rem establishing the character of the Desplaines River as a non-navigable stream in a state of nature.

32. Said Circuit Court of Appeals erred in not following the decision of the Supreme Court of Illinois in the case of People of the State of Illinois v. Economy Light & Power Company and reversing the decree of said United States District Court upon the ground that said judgment of the Supreme Court of the State of Illinois and the decree of the Circuit Court of Grundy County thereby affirmed was a judgment in rem establishing the character of the Desplaines River as a non-navigable stream notwithstanding the additional flow of water turned into the stream from the Sanitary District channel.

By reason of the foregoing errors, and others appearing upon the face of the record, appellant prays that the said judgment of the United States Circuit Court of Appeals for the Seventh Circuit and the decree of the said United States District Court for the Eastern Division of the Northern District of Illinois entered May 25, 1917, may be reversed and the cause remanded with instructions to said United States District Court to enter a decree in favor of appellant and dismissing the appellee's bill of complaint.

FRANK H. SCOTT,
Solicitor for said Appellant,
Economy Light & Power Company.

Endorsed: Filed Feb. 20, 1919. Edward M. Holloway, Clerk.

And afterwards, on the same day, to-wit: On the twentieth day of February, 1919, in the October Term last aforesaid, the following further proceedings were had and entered of record, to-wit:

THURSDAY, February 20, 1919.

Court met pursuant to adjournment and was opened by proclamation of crier.

Present:

Hon. Francis E. Baker, Circuit Judge, presiding.
Hon. Samuel Alschuler, Circuit Judge.
Hon. Evan A. Evans, Circuit Judge.
Edward M. Holloway, Clerk.
John J. Bradley, Marshal.

Before Hon. Francis E. Baker, Circuit Judge.

2525.

ECONOMY LIGHT & POWER COMPANY

vs.

UNITED STATES OF AMERICA.

Appeal from the District Court of the United States for the Northern District of Illinois, Eastern Division.

Upon motion of Frank H. Scott, solicitor for Economy Light & Power Company, appellant in the above entitled cause, due notice of said motion having been given the appellee, United States of America, by notice served upon Charles F. Clyne, United States District Attorney, and Clarence N. Goodwin, Special Counsel, its solicitors, it is ordered that an appeal to the Supreme Court of the United States from the judgment entered by this Court in the above entitled cause on, to-wit, the 21st day of January, 1919, be, and the same hereby is allowed upon the giving of a bond (such bond to be in the amount to be agreed upon by counsel for appellant and appellee and if not agreed upon to be hereafter fixed by this Court), within twenty (20) days to be approved by one of the Judges of this Court, conditioned according to law, and that a transcript of the record and proceedings herein, except the original book of maps, shall be transmitted to the Clerk of the Supreme Court of the United States, at Washington, D. C.

It is further ordered that the original book of maps shall be transmitted to the Clerk of the Supreme Court of the United States to be by him safely kept and returned to this Court upon the final determination of this cause in said Supreme Court.

It is further ordered that the mandate of this Court shall be stayed until the expiration of the time for filing of bond as herein

provided, and that upon the filing and approving of said bond the same shall operate as a bond for costs and damages on appeal and also as a supersedeas and a stay of further proceedings herein, pending the determination of said appeal in the Supreme Court of the United States.

And afterwards, to-wit: On the twelfth day of March, 1919, in the October term last aforesaid, the following further proceedings were had and entered of record, to-wit:

WEDNESDAY, March 12, 1919.

Court met pursuant to adjournment.

Present:

Hon. Francis E. Baker, Circuit Judge, presiding.
Hon. Samuel Alschuler, Circuit Judge.
Hon. Evan A. Evans, Circuit Judge.
Edward M. Holloway, Clerk.

Before Hon. Evan A. Evans, Circuit Judge.

2525.

ECONOMY LIGHT & POWER COMPANY

vs.

UNITED STATES OF AMERICA.

Appeal from the District Court of the United States for the Northern District of Illinois, Eastern Division.

Now comes the Economy Light and Power Company, appellant herein, and presents its appeal bond herein with National Surety Company as surety in the sum of Five Thousand Dollars ($5,000.00), which bond is hereby approved and ordered filed.

And afterwards, on the same day, to-wit: On the twelfth day of March, 1919, in the October term last aforesaid, there was filed in the office of the Clerk of this Court a certain Bond, which said Bond is contained in the order following herewith.

And afterwards, on the same day, to-wit: On the twelfth day of March, 1919, in the October term last aforesaid, the following further proceedings were had and entered of record, to-wit:

WEDNESDAY, March 12, 1919.

Court met pursuant to adjournment.

Present:

Hon. Francis E. Baker, Circuit Judge, presiding.
Hon. Samuel Alschuler, Circuit Judge.
Hon. Evan A. Evans, Circuit Judge.
Edward M. Holloway, Clerk.

Before Hon. Evan A. Evans, Circuit Judge.

2525.

ECONOMY LIGHT & POWER COMPANY

vs.

UNITED STATES OF AMERICA.

Appeal from the District Court of the United States for the Northern District of Illinois, Eastern Division.

Now this day comes the Economy Light and Power Company by its counsel and presents and files its bond, which said bond is in the words and figures following, to-wit:

Know all men by these presents, That Economy Light & Power Company, a corporation, as principal, and National Surety Company as surety, are held and firmly bound unto the United States of America in the full and just sum of Five Thousand Dollars ($5,000.00) to be paid to the said United States of America, to which payment well and truly to be made we bind ourselves and our successors, jointly and severally, firmly by these presents.

Sealed with our seals and dated this 28th day of February, in the year of our Lord one thousand nine hundred and nineteen.

Whereas, lately at a session of the United States Circuit Court of Appeals for the Seventh Circuit in an appeal pending in that Court from a decree of the United States District Court for the Eastern Division of the Northern District of Illinois, entered on the 25th day of May, 1917, in favor of the appellee, United States of America, and against the appellant, Economy Light & Power Company, the said decree of the said United States District Court was affirmed by said Circuit Court of Appeals and judgment entered in said Court on to-wit: the 21st day of January, 1919; and

Whereas, the appellant has obtained from said Circuit Court of Appeals an order allowing an appeal to the Supreme Court of the United States to review the judgment of said Circuit Court of Appeals and a Citation directed to the United States of America is about to

be issued citing and admonishing the said United States of America to be and appear at the Supreme Court of the United States to be holden at Washington in the District of Columbia.

Now, Therefore, the Condition of the above obligation is such that if the said appellant, Economy Light and Power Company, shall prosecute its said appeal with effect and shall answer all damages and costs that may be awarded against it if it fail to make its plea good, then the above obligation is to be void; otherwise to remain in full force.

ECONOMY LIGHT & POWER COMPANY,
By CHARLES A. MONROE,
Its President.
NATIONAL SURETY COMPANY,
By W. HERBERT STEWART,
Its Attorney in Fact.
W. HERBERT STEWART. [SEAL.]

O. K. as to form & amount.
C. N. G.,
Sp. Ass't to Att'y Gen.

2525.

ECONOMY LIGHT & POWER COMPANY

vs.

UNITED STATES OF AMERICA.

Appeal from the District Court of the United States for the Northern District of Illinois, Eastern Division.

Upon application of counsel for appellant, It is ordered that the time to docket cause and file the transcript of the record in the Supreme Court of the United States be, and the same is hereby extended sixty (60) days from March 22, 1919.

United States Circuit Court of Appeals for the Seventh Circuit.

I, Edward M. Holloway, Clerk of the United States Circuit Court of Appeals for the Seventh Circuit, do hereby certify that the foregoing typewritten and printed pages, numbered from 1 to 40, inclusive, contain a true copy of the proceedings had and papers filed (except the Order of October 27, 1917 relating to the filing, etc. of the printed record, the briefs of counsel and stipulations relating thereto) in the case of Economy Light and Power Company vs. United States of America, No. 2525, October Term, 1916, as the same remains upon the files and records of the United States Circuit Court of Appeals, for the Seventh Circuit.

In testimony whereof I hereunto subscribe my name and affix the seal of said United States Circuit Court of Appeals for the Seventh Circuit, at the City of Chicago, this fifth day of May, A. D. 1919.

[Seal United States Circuit Court of Appeals, Seventh Circuit.]

EDWARD M. HOLLOWAY,
Clerk of the United States Circuit Court of Appeals for the Seventh Circuit.

Citation.

The President of the United States to the United States of America, Charles F. Clyne, United States Attorney, and Clarence N. Goodwin, Special United States Attorney, Greeting:

You are hereby cited and admonished to be and appear at a Supreme Court of the United States to be holden at the City of Washington in the District of Columbia, within thirty (30) days from the date hereof, pursuant to an order allowing an appeal entered in the office of the Clerk of the United States Circuit Court of Appeals for the Seventh Circuit in a certain action therein pending, No. 2525, in which the Economy Light & Power Company is appellant and the United States of America is appellee, to show cause, if any there be, why the judgment rendered against the said appellant and in favor of the appellee as mentioned in the said order allowing the appeal, should not be corrected and why speedy justice should not be done to the parties in that behalf.

Witness the Honorable Francis E. Baker, one of the Judges of said United States Circuit Court of Appeals for the Seventh Circuit, this 20th day of February, A. D. 1919.

FRANCIS E. BAKER,
Circuit Judge.

Service of the within citation and receipt of the copy thereof is admitted this 10 day of March, A. D. 1919.

CLARENCE N. GOODWIN,
Sp. Ass't to the Att'y Gen.

STATE OF ILLINOIS,
County of Cook, ss:

Edgar Shroeder, being first duly sworn deposes and says that he served the above and foregoing citation upon Charles F. Clyne, United States Attorney, on the 11th day of March, A. D. 1919, by delivering a copy thereof to W. H. Small, chief clerk in the office of the said United States Attorney, at the office of said United States Attorney, in the City of Chicago, Illinois; that he served said citation upon the Attorney General of the United States and upon

the Solicitor General of the United States by mailing a copy thereof to each of them on the 10th day of March, 1919, by registered mail in envelopes properly stamped and addressed to said respective officers, at the City of Washington, D. C.

EDGAR SCHROEDER.

Subscribed and sworn to before me this 12th day of March, A. D. 1919.

[SEAL.] ALLEN E. DENTON,
Notary Public.

[Endorsed:] 2525. United States Circuit Court of Appeals for the Seventh Circuit. Economy Light & Power Company, a corporation, appellant, vs. United States of America, Appellee. Citation. Filed Mar. 15, 1919. Edward M. Holloway, Clerk. Scott, Bancroft, Martin & Stephens, Attorneys at Law, Corn Exchange Bank Building.

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JAMES D. MAHER,

IN THE

Supreme Court of the United States.

OCTOBER TERM, A. D. 1919.

No. [redacted]104

ECONOMY LIGHT & POWER COMPANY,
Appellant,

vs.

UNITED STATES OF AMERICA,
Appellee.

APPEAL FROM THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SEVENTH CIRCUIT.

BRIEF AND ARGUMENT FOR APPELLANT.

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GUNTHORP-WARREN PRINTING COMPANY, CHICAGO.

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IN THE

Supreme Court of the United States.

OCTOBER TERM, A. D. 1919.

No. 365.

ECONOMY LIGHT AND POWER COMPANY,
A CORPORATION,
Appellant,

vs.

UNITED STATES OF AMERICA,
Appellee.

APPEAL FROM UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SEVENTH CIRCUIT.

MAY IT PLEASE THE COURT:

This is an appeal from a judgment of the Circuit Court of Appeals for the Seventh Circuit affirming a decree enjoining appellant from completing the construction of a dam upon its own property in, and a short distance above the mouth of, the DesPlaines River, at Dresden Heights, between Joliet and the Illinois River. Two grounds for injunction are alleged in the bill of complaint. The larger part of the bill is devoted to setting up a claim that the title to the bed is in the United States. The other ground is that the dam was being constructed in a navigable waterway of the United States, in violation of Section 9 of the River and Harbor Act of March 3, 1899, Ch. 425.

We shall state the pleadings and facts more fully hereinafter. At present, we inform this court:

1. That the claim of navigability of the DesPlaines River, as attempted to be made out by the appellee's evidence, is confined to a portion of it which is wholly within the State of Illinois.

2. That the Supreme Court of Illinois, in a proceeding brought by the state against this appellant to restrain the construction of this same dam, and upon substantially the same evidence as is here presented, has found the DesPlaines River not to be a navigable stream, and that appellant had the right to construct the dam. (241 Ill., 290.)

3. That the evidence showed, and the trial court and the Court of Appeals in their opinions found, that there was not at the time this action was begun, nor when the decree was entered, nor at any time within the memory of man, any commerce upon this river to be obstructed.

4. That the river is, and has been for years, obstructed by numerous substantial railroad and highway bridges; that dams have existed in the portion of it in question since the earliest settlement of the adjacent country and that it is obstructed by a large dam at Joliet owned by the State of Illinois.

5. That the lower courts in their opinions based their conclusion that the river is a navigable stream solely on the fact that there is some evidence that prior to the Ordinance of 1787 and to early legislation of Congress for the government of the Northwest territory, the river was used to some extent by explorers and fur traders, and they held that because the Ordinance and those early Acts of Congress enacted after the adoption of the Constitution, provided that all navigable waters leading to the Mississippi and St. Law-

rence Rivers should be common highways and forever free without impost or duty, therefore, and for that reason alone, the DesPlaines is to be regarded as a navigable stream within the Act of Congress under which the suit was brought and within the Commerce clause of the Constitution.

6. That before the enterprise of building the dam was entered upon, and years before this suit was begun, the plans were in fact submitted to the Chief of Engineers and the Secretary of War, who ruled that the DesPlaines River was not a navigable waterway of the United States, and that the projectors of the enterprise were assured in writing that there was no objection on the part of the Government to the building of the dam, which, as the engineers stated, would be a benefit to the United States if it should ever undertake to make the DesPlaines navigable.

THE PLEADINGS.

I.

THE BILL.

The bill was filed December 14, 1909 (pp. 3188-3201).

As said above, relief was prayed for on two grounds: (1) that the portion of the river bed on which the dam was being constructed was the property of the United States; (2) that the DesPlaines River was a navigable waterway of the United States and that appellant was constructing the dam without having obtained the consent of Congress and without the authority of the Legislature of Illinois, thereto, and without having had the plans thereof approved by the Chief of Engineers and by the Secretary of War, as required by the Act of Congress of March 3, 1899, Ch. 425, hereinafter quoted (pp. 7-8).

Claim of Title to the Bed of the Stream.

The bill recited that by Act of Congress of March 2, 1827, there was granted to the State of Illinois land for the purpose of aiding in opening a canal between the Illinois River and Lake Michigan; that prior thereto the United States had made a survey of public lands adjacent to the DesPlaines River, including the portion thereof in which the dam in question was being constructed, and had caused the river to be meandered, which surveys became part of the public records of the United States; that the construction of the Illinois and Michigan Canal was begun in 1837, and completed in 1848; that by an act of February 26, 1839, the State of Illinois provided for the sale and disposal of the lands so granted, and among other things that

> "lands situated upon streams which have been meandered by the surveys of public lands by the United States shall be considered as bounded by the lines of those surveys, and not by the stream";

It alleged that by this Act the Legislature declared it to be its understanding that the grant of March 2, 1827, did not include the land and the river bed within said meander lines, and that therefore the State of Illinois did not accept from the United States any grant thereof. The bill further recites that in 1843 the State for the purpose of raising a fund to complete the canal, conveyed the canal itself and all the remaining lands and lots belonging to the canal fund, to a board created by the Legislature, and known as the Board of Trustees of the Illinois and Michigan Canal; that the board caused a survey of such lands to be made, upon which the meander lines of the DesPlaines River as shown by the Government Survey were designated as the boundaries of the lands granted by the United States and accepted by the State of Illinois under the Act of March 2, 1827; that by deed dated October 22, 1860, the board of trustees conveyed to one Boyer, certain lands by description, and that the portion of the DesPlaines River in which the dam had been commenced by appellant, flows through the lands described in the deed to Boyer; that appellant claims title to this land through mesne conveyances from Boyer. But the bill alleges that because of the provision above quoted from the Act of the Legislature of Illinois of March 2, 1827, no title to the bed of the stream passed to Boyer, and that that portion of the river bed is the property, and subject to the control, of the United States.

The District Court in its opinion found that this theory of ownership in the United States as a ground for injunction, was untenable (p. 3238), and though the claim was asserted in the argument in the Court of Appeals, no reference was made to it in the opinion of that court.

THE CLAIM, AS SET OUT IN THE BILL OF COMPLAINT, THAT THE DESPLAINES RIVER IS A NAVIGABLE WATER OF THE UNITED STATES.

To sustain the second claim the bill alleged that the portion of the DesPlaines River in question was covered by the following Acts and Ordinance, and became by virtue thereof, and is, navigable water of the United States:

1. An Act of the Illinois Legislature of February 28, 1839, declaring the DesPlaines River from a point where it most nearly connects itself with the Illinois and Michigan Canal *to its sources within the boundaries of Illinois*, to be navigable.

(The point here referred to is above the portion of the river claimed in this suit to be navigable, and no attempt was made to prove that the portion referred to in the Act was ever in fact navigable.)

2. The Ordinance of 1787 for the government of the Territories, providing that the navigable waters leading to the Mississippi and St. Lawrence Rivers *and the carrying places between* the same, should be common highways, and forever free, without tax, impost or duty.

3. The Statute of the United States of 1846, Ch. 89, Sec. 3, admitting Wisconsin into the Union as a State, which enacted that the Mississippi and other rivers bordering on the states, shall be common highways, etc.

It further alleged that the portion of the river in which appellant had commenced construction of the dam, was in its natural condition navigable in fact; that upon completion of the Illinois and Michigan Canal the portion of the river below the point of its connection with the canal, by reason of its connection with the canal and the Illinois River, formed part of a continuous highway

for commerce embracing Lake Michigan, the Chicago River, the Illinois and Michigan Canal, the DesPlaines and Illinois Rivers, and the Mississippi River, and regardless of obstructions and shallow places, was part of the navigable waterways of the United States.

(As a matter of fact the Illinois and Michigan Canal leaves the river at a point some fifteen miles north of the site of the dam, and has no connection with the DesPlaines or Illinois from that point, until it reaches its terminus at La Salle.)

The bill further alleged that under an Act of the Legislature of Illinois of May 29, 1889, the Sanitary District of Chicago had constructed a canal connecting the Chicago and DesPlaines Rivers, at a point above the portion of the river in which the dam was being constructed, which Sanitary District Canal, since its opening in 1900, has been and is part of the navigable waters of the United States, and that thereby the quantity of water flowing through the DesPlaines River has been largely increased, and that the portion in question is now water navigable in fact; that with the exception of rapids at certain places in the river between Joliet and the Illinois River, the river

> "has been, since the opening of said sanitary district canal, and now is, capable of being navigated for the purposes of commerce, and that difficulties arising on account of said rapids above mentioned, are capable of being overcome through the improvement of said river by locks, canals and dams."

The bill set out the portion of the Act of March 3, 1899, Ch. 425, on which complainant relied, which is as follows:

> "That it shall not be lawful to construct or commence the construction of any bridge, dam, dike or causeway over or in any port, roadstead, haven, harbor, canal, navigable river, or other navigable water

> of the United States until the consent of Congress to the building of such structures shall have been obtained and until the plans for the same shall have been submitted to and approved by the Chief of Engineers and by the Secretary of War; provided, that such structures may be built under authority of the legislature of a state across rivers and other waterways the navigable portions of which lie wholly within the limits of a single state, provided the location and plans thereof are submitted to and approved by the Chief of Engineers and by the Secretary of War before construction is commenced."

The bill alleged that appellant had never obtained the consent of Congress to the building of the dam, nor had the plans been approved by the Chief of Engineers and by the Secretary of War; that the structure so far as completed, was in violation of the Act of March 3, 1899, and that if completed it would be a permanent obstruction of the river. The prayer of the bill has been stated above.

The bill did not allege that there was any commerce on the river to be obstructed. The only suggestion that there ever had been any is in the allegation that

> "upon the completion of the Illinois and Michigan Canal said portion of said DesPlaines River, below the point of its connection with said canal and the Illinois River, formed a part of a continuous highway for interstate and foreign commerce embracing Lake Michigan, the Chicago River, the Illinois and Michigan Canal, the DesPlaines and Illinois Rivers and the Mississippi River."

There was not a particle of evidence tending to sustain this allegation, and the fact is as found by the trial judge in his opinion, that there is "No evidence of actual navigation within the memory of living man" (p. 3237), and the Court of Appeals, in its opinion, said that this was shown by the record.

The Demurrer and Answer.

Defendant demurred and answered the bill. (Answer, pp. 3203-3233.) Among other grounds of demurrer specified were the following: (6) That the bill alleged that the DesPlaines River became navigable water of the United States by virtue of the Ordinance of 1787; (7) that the bill alleged that by virtue of the Act of the Legislature of Illinois of February 28, 1839, the portion of the DesPlaines River referred to in that act became navigable water of the United States; (8) that the bill alleged that by the Act of Congress admitting Wisconsin into the Union, the portion of the river in Wisconsin became navigable water of the United States; (9) that the bill did not allege that the dam would interfere with commercial navigation upon said river; (10) that the bill did not allege that there was any commercial navigation upon the river which would be interfered with or obstructed by the completion or maintenance of the dam; (11) that the bill showed that defendant was in possession of the land and river within the meander line referred to, under *bona fide* claim of title, and that its object was to divest defendant of its title thereto, and that defendant, by virtue of the Seventh Amendment to the Constitution of the United States, and Section 5 of Article 11, of the Constitution of Illinois, had a right to have its title determined in a court of law by a jury.

The demurrers were overruled in the final decree.

Answering, the defendant admitted that it had commenced the construction of the dam without the consent of Congress or the authority of the Legislature of Illinois, or the approval of the plans by the Chief of Engineers or the Secretary of War (except as later stated in the answer). It averred that by the legislation set out in the bill concerning the Illinois and Michigan Canal,

and the selection of lands thereunder by the canal commissioners, each alternate section along the route of the canal, including the land and river bed within the meander lines of the DesPlaines River in Section 25—the site of the dam—became vested in the State of Illinois, with full power in the State to sell and convey the same. It admitted that the United States, during the year 1821, caused a survey to be made of public lands along the DesPlaines River, including the portion where the dam was under construction, but denied that it caused the river to be meandered, or that surveys showing the meander lines became a part of the public records of the United States relating to public lands.

The answer denied that by the Act of the Illinois Legislature of February 26, 1839, it was provided that

> "that lands situated upon streams which have been meandered by the surveys of public lands by the United States shall be considered as bounded by the lines of those surveys, and not by the stream,"

but averred that the Act provided that certain conditions, of which one was expressed in the language quoted, should be annexed to, and compose a part of, the contract in all sales of land and lots thereunder, but it denied that the State did not accept from the United States the land and river bed within the meander lines, and averred that at all times the State had insisted that the title thereto passed to the State from the United States. The answer further alleged that if in fact the DesPlaines is a navigable river, then the title to its bed passed from the United States to the State upon its admission into the Union in 1818.

The answer admitted that defendant's title was derived as stated in the bill, but denied that it had no title to the bed of the stream or the land within the meander lines. It admitted that the Illinois and Michigan Canal since

its completion in 1848, had been an artificial navigable waterway connecting the Chicago and Illinois River, that it connects with the DesPlaines River near Joliet, and follows the bed of that stream for a distance of between one and two miles, diverging from it about fifteen miles above the point where the dam was being constructed, and from the point of divergence paralleling the DesPlaines and Illinois Rivers to La Salle, where it connects with the Illinois River.

It averred that the dam was not in that part of the DesPlaines referred to in the Illinois Act of February 28, 1839, and that it is not competent for the State to create a navigable stream by a statutory declaration of navigability. It alleged that the Ordinance of 1787 ceased to have any effect upon the admission of Illinois into the Union. It denied that the provisions of the statute of the United States of 1846, admitting Wisconsin into the Union, applied to the DesPlaines River, or that that statute, or the Ordinance of 1787, had the effect of making the DesPlaines, or any portion of it, navigable waters of the United States. It denied that that river was in its natural condition, or after the completion of the Illinois and Michigan Canal, or the Sanitary District Canal, actually used or capable of being used for purposes of navigation, or for purposes of useful commerce, and averred that it could only be made navigable by entirely changing the character of the river, and making a navigable stream where none had before existed. It was further averred that for over a hundred years the United States had treated the DesPlaines as a nonnavigable stream; that it had several times had it surveyed for the purpose of ascertaining the possibilities of creating a navigable channel therein, but that the reports of its engineers making such surveys had shown that it was not a navigable stream, and that it had without protest, per-

mitted dams and bridges to be constructed over it from the earliest days down to the present time, without its consent, and had never attempted to exercise any jurisdiction over any part of it.

Certain facts as to the history of the proposed enterprise, and the full correspondence between its projectors and the War Department prior to entering upon it, showing that it met with the full approval of that Department, and the opinion of Secretary of War Taft that no permit was necessary to put any obstruction in the DesPlaines River, because it was not a navigable stream, are set out in full in the answer. (pp. 3213-3228.) Details of these matters will not be referred to here, as it will be necessary to go into them at some length, in the argument. It is sufficient to say here that the answer alleged that it was in reliance upon this attitude, and these acts, of the United States, that defendant began the construction of the dam, and in connection therewith, expended large sums of money, and incurred liabilities for other large sums, and it averred that in view of these facts the present action of the United States as to the navigability of the stream was unjust and inequitable.

The answer set up and relied on a decree in favor of this appellant of the Circuit Court of Grundy County, Illinois, in an action brought by the State of Illinois, to restrain the erection of the same dam, which decree was affirmed by the Supreme Court of Illinois October 26, 1909, the latter court holding that the title to the bed of the stream was in this appellant, and that the stream itself was not navigable; the answer alleged that the decree of the State court constituted a judgment *in rem* as to both points.

The answer admitted that the Sanitary District Canal was navigable, but denied that it was navigable water of

he United States, or subject to the jurisdiction and ontrol of the Federal Government. It averred that the ct of the Illinois Legislature under which it was con-tructed provided that whenever the Federal Govern-nent, after the water should have been turned into the anitary District Canal should improve the DesPlaines nd Illinois Rivers for navigation to connect with the anitary District Canal, it should have full control over hat Canal for navigation purposes, but not to interfere vith its control for sanitary or drainage purposes; but t averred that the general Government had not im-roved those rivers for navigation or otherwise, and had o control over the Sanitary District Canal.

The answer denied that Section 9 of the Rivers and Harbor Appropriation Act of March 3, 1899, Ch. 425, as any application to the DesPlaines River; it alleges hat the purpose of the act was to protect commerce, and hat there was no commerce on the DesPlaines to be pro-ected, and that it was not a navigable water of the United States.

Leave was given to appellant to amend its answer to conform to the evidence and the arguments made in the cause.

The amendment to the answer appears at pp. 3235-3236. It averred that the DesPlaines River was not in fact, capable of navigation for purposes of useful commerce, and that neither Section 8, Article 1 of the Constitution of the United States, nor the Act of Congress of March 3, 1899, nor any other Act of Congress is applicable to such a stream; that there was not, and had not been within the memory of mankind, any commerce upon the Des-Plaines River, and that Congress had no power to control or regulate the use of the river; that if the Act of March

3, 1899, or any of the acts mentioned in the bill, or relied on by complainant, should be held to establish the character of the DesPlaines River as navigable, then said acts are unconstitutional, notwithstanding the Ordinance of 1787, or any of the Acts of Congress for the government of the Northwest territory.

STATEMENT OF FACTS.

It will be necessary, in the argument, to refer in detail to historical facts concerning the DesPlaines River, and also to the circumstances connected with the projected enterprise. Therefore, to avoid repetition, a very brief statement of facts will be made at this point.

The acquiring of the necessary lands to develop the water power near the mouth of the DesPlaines River, was begun by Frank G. Logan and Charles A. Munroe in the spring of 1904. (Tr., 3182.) Appellant, the Economy Light & Power Company, had no interest in that enterprise until all the properties necessary for the construction of the dam, and to be affected by the flowage resulting therefrom, had been acquired. The lands thus acquired, aggregated some 1,700 acres. Thereafter the owners made all necessary financial arrangements for constructing the dam and works. But in April, 1906, negotiations were entered upon with appellant which resulted in the sale of all the properties to the latter in November of that year.

Appellant, at the time of the purchase, executed a mortgage securing $3,000,000 of bonds, the security being the properties in question and other properties owned by appellant. Two million dollars of these bonds were sold for the purpose of raising money to pay for the proposed dam and power house. Contracts were entered into by appellant for the construction work and for the purchase of necessary machinery, and several hundred thousand dollars were spent, and contracts involving other large amounts were entered into before the work was interrupted at the suit of the State of Illinois. (Tr., 2198-2199, 3184-3185.)

Both the State of Illinois and the United States have always treated the DesPlaines River as an unnavigable stream, which the riparian owners had the right to bridge and dam as they saw fit.

As early as 1826 a dam was built practically at the site of that proposed to be built by appellant. Private dams existed on the river until taken and paid for by the State in the construction of the Illinois and Michigan Canal and of the Sanitary Channel. At the time of the trial there were thirteen bridges between Joliet and the mouth of the river being the portion of the river in which appellant was erecting its dam, and fifty bridges between Lockport and Irving Park. (pp. 1037-39.) Surveys had been made by the United States as to the feasibility of making improvements in the river in case it should ever be deemed desirable to do so. In 1905 the Ernst Board of Engineers had made a report upon a survey for a fourteen-foot waterway from Lockport to the mouth of the Illinois River. In order that he might know whether the project of building the dam would, in the language of the Chief of Engineers, General MacKenzie, "be in harmony with the work of improvement proposed by the Government," Munroe, before the sale to appellant, laid the plans before the War Department, and it assured him that they would harmonize with the tentative plans for such improvement. And not only that; the Government engineers declared that the dam would save the Government a large sum in case it ever undertook the improvement of the river for navigation. The War Department, however, and the Secretary of War, pronounced the stream to be unnavigable. The circumstances of the submission of these plans appear in more detail hereafter at page 81.

While the work was in progress, and on December 30,

1907, the State of Illinois brought an action against the present appellant in the Circuit Court of Grundy County to prevent the construction of the dam. The proceeding was by information. Among other things, it was claimed that the DesPlaines was a navigable waterway of the United States, and that the dam was being built contrary to the provisions of the Act of March 3, 1899. An injunction was issued restraining the further prosecution of the work. The case was tried before the Honorable Julian W. Mack, judge of the Circuit Court of Cook County, and decided in favor of the Economy Light & Power Company, the court finding that the DesPlaines was not a navigable stream. The State took an appeal to the Supreme Court of Illinois, which affirmed the decree on October 26, 1909, in a very extended opinion reported in the 241 Ill., 290. A writ of error was taken by the State to the Supreme Court of the United States, which was dismissed for want of jurisdiction in an extended opinion June 2, 1914. (*State* v. *Economy Light & Power Company,* 234 U. S., 497.) In the meantime, and after the decision of the State Supreme Court, the present action was brought by the Attorney General of the United States. The argument was concluded in the trial court February 22, 1913, the case taken under advisement by Judge Landis, and decree was rendered in favor of the United States on the 25th of May, 1917. This decree was affirmed by the Court of Appeals January 21, 1919, from which order this appeal is taken.

The bulk of the material evidence in the trial of the instant case was that given in the State case and read into this record by stipulation. All the evidence shows that the DesPlaines River, either in its natural condition, or as augmented by artificial works, has never been used or been capable of be-

ing used, for purposes of navigation. The records of early explorers and adventurers, the testimony of early settlers, the fact that all their supplies were brought in and all their produce carried out in wagons, the reports of engineers to select the line of the canal, the act of the State in building the canal paralleling the river, the reports of United States engineers making surveys for a deep waterway, and the opinion of experts,—all conclusively establish this fact.

The trial court and the Court of Appeals found that there never had been any navigation on the river within the memory of living man but rested their decisions upon a definition of navigable waters of the United States, which is not sanctioned by any authority, and which, if adopted, would include streams over which the Government under the Commerce clause of the Constitution, can have no jurisdiction.

DESCRIPTION OF THE RIVER FROM LOCKPORT TO ITS MOUTH, AND OBSTRUCTIONS IN IT.

What purports to be a description of the river, contained in the opinion of the Court of Appeals is largely not a description of the river as it exists. We shall show in the argument to follow that what the court describes is an attempted reproduction of the river as it was supposed by a witness, Cooley, to have existed in a state of nature. Cooley asserted that an engineer could reproduce the DesPlaines just as Cuvier could reproduce an extinct mammal, or Agassiz a fish from bones that are left. We shall show that the most important "bones" were missing, and that Cooley began his attempted reproduction by assuming without data, that they were of a certain character. All that is said in the opinion of the Court of Appeals, as to possi-

bilities of boats passing up and down the river and across the Chicago Divide refers to this assumed "state of nature," which it is admitted, and indeed strenuously insisted, has not existed for upward of seventy years.

We shall further point out in the argument, that the reference by the Court of Appeals to the Riverside gauge readings is very misleading since the elevations in the gauge refer to the levels above Chicago datum, and not to depths, the reading of 11 feet 4 inches representing no water in the river except in pools.

The distance from Lockport to the mouth of the river is 20 miles. The fall of the river from Lockport to Joliet is about 38 feet in 4½ miles. From Dam No. 1 in Joliet to the head of what is known as Lake Joliet, there is a fall of 21 feet in 3½ miles. Lake Joliet is a pool about 5 miles in length with but little fall. Below the foot of Lake Joliet the river divides and forms what is called Treat's Island. The main channel is on the left of that island and there is a fall in it of 9½ feet in 1-1/10th miles, and that fall is concentrated at the head and foot of the island.

After passing Treat's Island the river is again united and forms a pool about one mile long, in which there is very little fall. In the next stretch there is a fall of about 2-7/10th feet in one mile. Then follows a pool described in the opinion of the Court of Appeals, inadvertently as 13 miles long but which is in fact 3 miles long, where there is a fall of two feet in 3 miles; and in the last half mile above the mouth of the river, there is a fall of 3½ feet. It is across the lower end of this stretch that the proposed dam is to be located. The bottom of the river from Lockport to the dam in question, with the exception of that portion along Lake Joliet,

is covered with a large number of bowlders of various sizes, some of them between two and three feet in diameter. (pp. 2210, 2637, 2639, 2640, 2643, 2655.) The Supreme Court of Illinois, in *People* v. *Economy Light & Power Co.*, 241 Ill., 290, upon practically the same evidence, said:

> "The evidence shows that these bowlders are of various sizes, some of them between two and three feet in diameter. Some of them are covered entirely with water, while others project slightly above the surface of the water. It is also shown that in going down the river in a skiff or any kind of boat there is great danger of coming in contact with these bowlders. The current is so strong that it is not possible to row a boat upstream over these rapids. In addition to the natural barriers already spoken of, the evidence shows that the stream is tortuous and the channel very narrow at places. The slopes in the river already given do not represent the greatest fall that can be found in this stretch. The evidence shows that there is near the head of Treat's Island a fall of seventeen feet to the mile, and near the foot the slope is eighteen feet to the mile, and in the right-hand channel opposite Treat's Island there is a space of five hundred feet in which the fall is fifty feet to the mile, and if shorter distances are taken even greater slopes than these will be found to exist. At one place near the mouth of the river there is a fall for three or four hundred feet of twenty feet to the mile. Between the mouth of the river and Lockport there are thirteen bridges across the river, none of which have draws to permit the passage of boats, if such passage were otherwise possible. Two of these bridges are railroad bridges, and all of them are permanent steel structures. Above Lockport there are some forty other bridges across the stream, constructed for steam or electric railroads and for wagons. The width of the river varies greatly. At some places it is not more than sixty feet wide, while in the widest place in Lake Joliet it is over one thousand feet wide. The evidence shows that the depth of water in the

river varies considerably in different places and also at different times in the same places. A chart showing the gauge readings at Riverside, a point twenty-eight miles above Joliet, shows the number of days in each year during which the river was dry at this point, which indicates that there were from twenty-four days in 1890 to two hundred and thirteen days in 1895 during which the river was dry at this point. This chart also shows the number of days during each of these years when there was a discharge of less than six inches of water at Riverside, the result of which is, totaling the number of dry days and the days showing less than a six-inch discharge, that there were from one hundred and twenty days in 1888 to three hundred days in 1901 when the river was either dry or showed less than six inches of water at Riverside. The depth of the river during the balance of the year is not shown on this chart. These gauge readings also show that the dry or low periods did not occur during the same time in each year. Every month in the year is represented several times during the years covered by this chart, from which the conclusion is drawn that there were no regular periods when a given stage of water could be safely expected.

We refer to the readings on the Riverside gauge, not because of their bearing on the question of navigability at that point, but for the reason that they tend to show the natural volume of water in the channel above the points where the volume is increased by the additions made by the Illinois and Michigan Canal and the drainage channel, which added from 250,000 to 400,000 cubic feet of water per minute to the river below the point of connection."

In addition to the obstructions mentioned in the above quotation from the *Economy* case in the Supreme Court of Illinois, there is a solid masonry bridge at Dam No. 1 at Joliet owned by the State, in connection with which there is a very extensive power house. This dam extends entirely across the stream.

ERRORS RELIED ON.

1. Said Circuit Court of Appeals for the Seventh Circuit erred in affirming the decree of the United States District Court for the Eastern Division of the Northern District of Illinois of May 25, 1917.

3. Said Circuit Court of Appeals erred in holding that the DesPlaines River was a navigable stream in its natural condition.

5. Said Circuit Court of Appeals erred in holding that the DesPlaines River is a navigable water of the United States.

6. Said Circuit Court of Appeals erred in holding that from the latter part of the Seventeenth Century to the first part of the Nineteenth Century men engaged in the fur trade passed up and down the DesPlaines River in canoes and flat boats regularly and that such passage constituted commerce.

7. Said Circuit Court of Appeals erred in holding that supplies of various kinds needed by the settlers were transported over the DesPlaines River during the period preceding 1825 and that commerce existed upon said river until the year 1825.

8. Said Circuit Court of Appeals erred in not reversing the decree of said United States District Court, upon the ground that the DesPlaines River was not navigable in its natural condition.

10. Said Circuit Court of Appeals erred in not reversing the decree of the said United States District Court upon the ground that the DesPlaines River is not now navigable.

11. Said Circuit Court of Appeals erred in not reversing the decree of the said United States District

Court upon the ground that the DesPlaines River is not, in fact, capable of navigation for purposes of useful commerce, and that neither Section 8 of Article I of the Constitution of the United States, nor the act of Congress of March 3, 1899, nor any other act of Congress is applicable to said stream.

13. Said Circuit Court of Appeals erred in holding that the power of Congress to regulate Interstate Commerce does not depend upon the commerce clause of the United States Constitution, but may be sustained under the war power.

14. The said Circuit Court of Appeals erred in holding that the Act of March 3, 1899, applies to streams not navigable at the time of the passage of said act.

15. The said Circuit Court of Appeals erred in holding that the Act of March 3, 1899, applies to streams upon which no commerce existed at the time of the passage of said act.

16. The Act of March 3, 1899, as construed and applied by said Circuit Court of Appeals to the DesPlaines River would be unconstitutional.

17. Said Circuit Court of Appeals erred in holding that the ordinance of 1787 was preserved in the Constitution of Illinois.

18. Said Circuit Court of Appeals erred in holding that the ordinance of 1787 supersedes the common law doctrine of the necessity of use or custom to establish a public right of highway in streams.

19. Said Circuit Court of Appeals erred in holding that Section 9 of the act of Congress of May 18, 1796, entitled, "An act providing for the sale of lands of the United States in the territory northwest of the River Ohio and above the mouth of the Kentucky River," and

Section 6 of the act of Congress of March 26, 1904, are applicable to the DesPlaines River.

21. Said Circuit Court of Appeals erred in not holding that the commerce clause of the United States Constitution does not give to Congress power to control by legislation streams upon which no commerce exists.

22. Said Circuit Court of Appeals erred in not holding that the commerce clause of the United States Constitution does not give to Congress power to control by legislation streams upon which no commerce existed at the date of the passage of such legislation.

25. Said Circuit Court of Appeals erred in not holding that under the commerce clause of the United States Constitution Congress only has power to legislate with reference to streams navigable by the standards of navigation existing at the date of such legislation.

26. Said Circuit Court of Appeals erred in not holding that the Act of March 3, 1899, applies only to streams which were navigable by standards of navigation existing at the date of the passage of said act.

27. Said Circuit Court of Appeals erred in not reversing the decree of said United States District Court upon the ground that if the Act of March 3, 1899, or any other act of Congress mentioned in appellee's bill of complaint or relied upon by appellee, applies to DesPlaines River, said acts are null and void under the provision of the 5th Amendment of the Constitution of the United States forbidding the taking of property without due process of law, and the taking of private property for public uses without just compensation.

28. Said Circuit Court of Appeals erred in not reversing the decree of said United States District Court upon the ground that if said act of Congress of March 3, 1899, or any other of the acts of Congress mentioned in

appellee's bill of complaint or relied upon by appellee should be held to establish the character of said Des-Plaines River as navigable, then said acts, and each of them, are and is, unconstitutional notwithstanding the Ordinance of 1787, or any of the acts of Congress for the government of the Northwest Territory.

32. Said Circuit Court of Appeals erred in not following the decision of the Supreme Court of Illinois in the case of *People of the State of Illinois* v. *Economy Light & Power Company* and reversing the decree of said United States District Court upon the ground that said judgment of the Supreme Court of the State of Illinois and the decree of the Circuit Court of Grundy County thereby affirmed was a judgment *in rem* establishing the character of the DesPlaines River as a non-navigable stream notwithstanding the additional flow of water turned into the stream from the Sanitary District channel.

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THE TITLE TO THE BED OF THE DESPLAINES RIVER AT THE POINT IN QUESTION, IS IN APPELLANT. THE CONTENTION OF THE UNITED STATES THAT IT HAS TITLE THERETO, IS WITHOUT ANY FOUNDATION IN LAW.

The larger part of the bill of complaint is given up to the assertion of title in the United States to the bed of the Des Plaines River. Although in the opinion of the District Court it was stated that this claim was untenable and it was not referred to in the opinion of the Court of Appeals, it remains in the case, and we cannot know that the United States, which solemnly asserted it in its bill, may not again urge the claim in this Court, and we therefore give it very brief consideration. The grounds upon which such title is claimed, appear in our statement of the pleadings, *supra*. In brief, it is rested upon a provision of the Act of Illinois Legislature of February 26, 1839, providing for the sale and disposal of canal lands, wherein, among other things, it was provided that

> "Lands situated upon streams which have been meandered by the surveys of public lands by the United States, shall be considered as bounded by the lines of those surveys, and not by the stream";

The bill alleges that this amounted to a rejection of so much of the land granted by the United States for canal purposes to the State of Illinois by the Act of March 2, 1827, as consisted of the beds of the streams in question.

In *State* v. *Economy Light & Power Co.*, 241 Ill., 290, the State of Illinois contended that because of this provision of the Act of 1839 the title to the bed of the Des

Plaines remained in it, but the court held that it was in he Economy Light & Power Company.

The United States insists in this cause that the Des Plaines River is a navigable stream. If that were so, he title to its bed would have passed to the State of llinois in 1818, when the State was erected out of the ter- itory. It therefore could not have been part of the rant of March 2, 1827, and could not have been rejected y an Act of the Legislature of Illinois in 1839.

When the United States created states out of terri- ories, all that it retained within the limits of those states ere the public lands. Those lands which were under he navigable waters, were not public lands. They were ands not held by the United States in its proprietary, but n its sovereign, character, and when the state was rected and the sovereignty passed to the State, the title o the beds of navigable streams vested in the State. Whether it remained there, or whether it went into the iparian owner, depended upon the law of the State it- elf, and under the laws of Illinois, it passed into the iparian owner.

It is unnecessary to cite all the numerous cases which ustain this doctrine. Among the federal cases are

Pollard v. *Hagen*, 3 How., 212.
Scott v. *Lattig*, 227 U. S., 229, 242-243.
Donnelly v. *United States*, 228 U. S., 243, 260-261.

A leading case in Illinois is *Braxon* v. *Bressler*, 64 Ill., 488.

Point II.

NAVIGABLE WATERS ARE THOSE WHICH, IN THEIR NATURAL AND ORDINARY CONDITION, ARE USED OR SUSCEPTIBLE OF BEING USED, AS HIGHWAYS OF COMMERCE, OVER WHICH TRADE AND TRAVEL ARE OR MAY BE CONDUCTED IN THE CUSTOMARY MODES OF TRADE AND TRAVEL ON WATER, AND THEY CONSTITUTE NAVIGABLE WATERS OF THE UNITED STATES WITHIN THE MEANING OF THE ACTS OF CONGRESS IN CONTRADISTINCTION FROM NAVIGABLE WATERS OF THE several STATES WHEN THEY FORM, BY THEMSELVES, OR BY UNITING WITH OTHER WATERS, A CONTINUED HIGHWAY OVER WHICH USEFUL COMMERCE IS, OR MAY BE, CARRIED ON WITH OTHER STATES OR FOREIGN COUNTRIES IN THE CUSTOMARY MODES IN WHICH SUCH COMMERCE IS CONDUCTED.

That the above is a correct definition of navigable waters of the United States, need not be supported by argument. It is in substance the definition laid down by this court in *The Daniel Ball*, 10 Wall., 557, and *The Montello*, 20 Wall., 430. It is a rule of general application throughout the United States, and all acts of Congress for the regulation of commerce, must be construed as applying only to waters of the character described. We state the fundamental rule, because from it as a starting point we expect to show that the decisions of the lower courts in the instant case proceed upon a definition of navigable streams, of the United States, which is unknown to the law.

Point III.

THE ACT OF MARCH 3, 1899, UNDER WHICH RELIEF IS ASKED IS OF GENERAL APPLICATION TO NAVIGABLE WATERS THROUGHOUT THE UNITED STATES. THE COURT OF APPEALS BASED ITS JUDGMENT SOLELY ON A DEFINITION OF NAVIGABLE WATERS OF THE UNITED STATES WHICH THE LAW DOES NOT RECOGNIZE, AND WHICH ADMITTEDLY COULD APPLY ONLY WITHIN A LIMITED TERRITORY.

The decree of the trial court, affirmed by the Court of Appeals, contains no finding of fact except that the "said structure described in said bill of complaint as being constructed by said defendant in said river, is a structure erected in violation of the provisions of Section 9 of the Act of March 3, 1899."

This finding was, as the opinion in both courts show, based solely on the supposed effect of the Ordinance of 1787, and early Acts of Congress for the government of the Northwest Territory. The trial court did not, and upon this record could not, find that the Des Plaines River, from the time of the earliest settlement of the adjacent country, down to the entry of the decree, had ever been navigable for purposes of useful commerce. On the contrary, it expressly found that there was

> "no evidence of actual navigation within the memory of living man, therefore, no present interference with navigation by placing obstruction in stream." (p. 3237.)

The Court of Appeals found that the record showed this to be true. (*Economy Light & Power Co.* v. *United States*, 256 Fed., 798.)

The Supreme Court of Illinois in the suit brought by the state against this appellant, decided that the river was not navigable, in a state of nature, and declared that there was not in the entire record a well-authenticated in-

stance in which a boat engaged in commerce navigated the waters of the Des Plaines River. (241 Ill., 309-336.)

We demonstrate in this brief (p. 108) that as to actual use, the records in both cases were in all substantial respects the same, except that there is in the present record additional evidence of attempted use of the river, which strongly confirms the conclusion to which the Illinois Supreme Court came.

The Court of Appeals said:

> "The disposition of this case upon these facts may therefore well be narrowed down to the question: Was the Des Plaines River navigable in its natural condition." (256 Fed. 800.)

and after consideration of that question and referring to cases which concerned "floatable" streams it expressed its conclusion as follows:

> "Under these authorities it seems clear that the Des Plaines River, having been used as an interstate highway of commerce from 1673 to 1825 in the only kind of commerce then existing, is to be deemed of navigable capacity and a navigable stream within the Ordinance of 1787 and the acts of Congress of May 18, 1796, and March 26, 1804, by which Congress specifically took jurisdiction over navigable streams and declared that they should forever remain public highways." (p. 804.)

Thus the Court of Appeals rested its decision, just as did the District Court, upon what it assumed to be the effect of the Ordinance of 1787 and of the statutes for the government of the Territory. We leave out of consideration, in this phase of the discussion, the question whether there is basis in the record for the words "having been used as an interstate highway of commerce from 1673 to 1825 in the only kind of commerce then existing." That will be discussed later.

In the light of this opinion, and of the admitted facts, the inquiry on this branch of the case, narrows itself

wn to this one question: Is the Act of March 3, 1899, rbidding obstructions of navigable streams, to be ap- ied to all streams which, at the date of the Ordinance 1787, and of the early Acts of Congress for the gov- nment of the Territory, were used to any extent what- er by explorers or fur traders? The opinion of the ourt of Appeals as well as that of the District Court akes the one fact of such use, the touchstone in de- rmining whether the Des Plaines River is a navigable ream within the meaning of the Act of 1899, regardless whether it has, or has not, from the earliest settlement the country, afforded a highway for useful commerce, d of practical utility to the public as such.

We shall show that the Act of 1899 is not to be consid- ed in connection with the Acts for the government of e Territory; that those Acts ceased to have any force d effect when the states were erected out of the Terri- ry.

The early acts of Congress referred to are the follow- g:

1. Act of Congress of May 18, 1796, U. S. St. L., Ch. , pp. 464-468, entitled "An Act providing for the sale Lands of the United States in the territory northwest the River Ohio, and above the mouth of the Ken- cky River," Section 9 of which reads, in part, as fol- ws:

> "And be it further enacted, that all navigable rivers within the territory to be disposed of by vir- tue of this act, shall be deemed to be, and remain public highways."

2. The Act of Congress of March 26, 1804, 2 U. S. St. , Ch. 35, pp. 277-283, entitled "An Act making provision r the disposal of public lands in the Indian Territory, d for other purposes," Section 6 of which reads, in rt, as follows:

"That all navigable rivers, creeks and waters, within the Indian Territory, shall be deemed to be and remain public highways."

3. The Act of February 3, 1809, creating Illinois territory, and providing that the inhabitants thereof should enjoy all the "rights, privileges and advantages" of the Ordinance of 1787.

The Ordinance "for the government of the territory of the United States northwest of the River Ohio" provided by Article IV thereof, that

"The navigable waters leading into the Mississippi and Saint Lawrence, *and the carrying places between the same*, shall be common highways, and forever free, as well to the inhabitants of the said territory as to the citizens of the United States, and those of any other states that may be admitted into the Confederacy, without any tax, impost or duty therefor." (U. S. Rev. St., 2d Ed., 1878, p. 13.) (Italics ours.)

To these Acts and to the Ordinance the courts below went to find the definition of the words "navigable river, or other navigable water of the United States," as used in the Act of March 3, 1899. Appellee was compelled to rely on them, because it is not, and cannot be, contended that the river is, or ever has been, navigable for commerce as now carried on, or as it has ever been carried on, since the adjacent country was first inhabited by white men.

A very practical difficulty in using any such test of navigability as the lower courts applied, is this: It assumes that Congress, in passing the Act of 1899—an act of general application—contemplated that for its purposes the navigability of waters in what was formerly the Northwest Territory, to which alone that early legislation referred, must be determined by a definition not applicable anywhere outside of that territory. Manifestly, Congress did not intend that, in apply-

ing the Act of 1899, a stream in Illinois should be included in the term "navigable waters of the United States," and that a stream of precisely the same character and capacity in Massachusetts should not be so included, the distinction being made solely because of the Ordinance and the Acts for the government of the territory. But the courts below adopted, and the appellee asks this court to adopt, a rule of construction of the Act of 1899 which would prevent appellant from building a dam in the Des Plaines River, solely because the Des Plaines River happens to be in the former Northwest Territory, while if it had happened to be in Massachusetts, the factors here held to be controlling, viz: the early Acts and the Ordinance of 1787, could not have any bearing in determining whether it was a navigable river within the meaning of the Act of 1899.

Whether a stream is a navigable water of the United States is, and must be determined by the definition which the federal courts apply to all streams wherever situated within the borders of the United States. That definition was laid down in the early case of *The Daniel Ball,* 10 Wallace, 557, and has been reiterated many times since, as follows:

> "Those rivers must be regarded as public navigable rivers in law which are navigable in fact. And they are navigable in fact when they are used or are susceptible of being used, in their ordinary condition, as highways for commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water. And they constitute navigable waters of the United States within the meaning of the acts of Congress in contradistinction from the navigable waters of the states, when they form in their ordinary condition by themselves, or by uniting with other waters, a continued highway over which commerce is or may be carried on with other states or foreign countries

in the customary modes in which such commerce is conducted by water."

In later cases it is held that the commerce must be "a useful commerce." (*The Montello,* 20 Wall., 430.)

We shall later show that under this rule, and the manner in which it has been applied, the Des Plaines River never was a navigable waterway in contemplation of law. We cite it here only to emphasize the point that the courts below brought the Des Plaines River within the scope of a law of general application, by adopting a definition of "navigable water" which is unknown to the law, and which could apply only in a limited territory.

Point IV.

THE COURT OF APPEALS ERRED IN ARRIVING AT THE CONCLUSION THAT THE DESPLAINES WAS A NAVIGABLE STREAM BECAUSE, AS IT HELD, IT WAS OF NAVIGABLE CAPACITY UNDER THE ORDINANCE OF 1787, AND THE STATUTES FOR THE GOVERNMENT OF THE NORTHWEST TERRITORY.

a.

THE ORDINANCE OF 1787, AND THE STATUTES REFERRED TO CEASED TO HAVE ANY EFFECT AFTER THE ADMISSION OF THE STATE OF ILLINOIS IN 1818.

The Ordinance of 1787 and the early Acts of Congress which, according to the Court of Appeals and the District Court, had the effect of perpetually dedicating as highways of commerce, rivers etc., were intended to regulate the territories and were largely limitations of their powers while in a territorial condition. When the territories passed from that condition to statehood, taking their places as equals with the original States, the purposes to be effected no longer existed, because they became subject to all the laws governing the original

es, possessed of the same rights, and bound by no r limitations.

fact by the act of the State of Virginia ceding the thwest Territory to the Union, the United States was nd to admit states formed out of the Northwest Ter- ry, "having the same rights of sovereignty, freedom independence as the other states."

is plainly established by the decisions of the Supreme rt of the United States and of the Supreme Court of ois, that neither the Ordinance of 1787, nor the legis- on for the government of the territories, on which the er courts alone relied, has any force and effect in the te of Illinois.

n *Van Brocklin* v. *State of Tennessee,* 117 U. S., 151, , the court said:

"The articles of confederation ceased to exist upon the adoption of the Federal Constitution; and the Ordinance of 1787, *like all the acts of Congress for the government of the territories,* had no force in any state after its admission into the Union, under that Constitution." (Italics ours.)

n *Hawkins* v. *Bleakly,* 243 U. S., 210, objection was de to a Workmen's Compensation Act on the ground t it dispensed with trial by jury. It was argued first t such right was secured by the Ordinance of 1787. s court, in an opinion by Mr. Justice Pitney, pointed that Iowa was not part of the Northwest Territory, l therefore never subject to the Ordinance. Secondly, as contended that the guaranties contained in the Or- ance were extended to Iowa by certain early acts of ngress. As to this, this court said (page 217):

"This is easily disposed of. The Act of 1838 was no more than a regulation of territory belonging to the United States, subject to repeal like any such regulation; and the act for admitting the state, so far from perpetuating any particular institution pre-

viously established, admitted it 'on an equal footing with the original states in all respects whatsoever.' The regulation, although embracing provisions of the ordinance declared to be unalterable unless by common consent, had no further force in Iowa after its admission as a state and the adoption of a state constitution, than other acts of Congress for the government of the territory. All were superseded by the state constitution. *Permoli* v. *First Municipality*, 3 How. 589, 610; *Coyle* v. *Oklahoma*, 221 U. S., 559, 567, 570; *Cincinnati* v. *Louisville & Nashville R. R. Co.*, 223 U. S. 390, 401."

In *Escanaba Co.* v. *Chicago*, 107 U. S., 678, the Escanaba Co. sought to enjoin the closing of the bridges over the Chicago River between the hours of 6 and 7 in the morning and 5:30 and 6:30 in the evening, pursuant to city ordinance. To avoid the well established rule that, while instrumentalities of interstate commerce which are wholly intrastate are within the paramount authority of Congress, yet until Congress has acted they are within the control of the state, it was contended that Congress had acted, by the adoption of the Ordinance of 1787, Article 4 of which provided that:

> "The navigable waters leading into the Mississippi and St. Lawrence and the carrying places between the same, shall be common highways, and forever free as well to the inhabitants of the said territory, as to the citizens of the United States."

But this Court held that neither the Ordinance of 1787 nor the early legislation for the government of the territories was in force in Illinois unless adopted by her after her admission to the Union.

The Court, by Mr. Justice Field, on page 688, said:

> "The Ordinance was passed July 13, 1787, one year and nearly eight months before the Constitution took effect; and although it appears to have been treated afterwards as in force in the Territory, except as modified by Congress, and by the Act of May 7, 1800, c. 41, creating the Territory of Indiana, and

by the Act of February 3, 1908, c. 13, creating the Territory of Illinois, the rights and privileges granted by the ordinance are expressly secured to the inhabitants of those territories; and although the Act of April 18, 1818, c. 67, enabling the people of Illinois Territory to form a Constitution and State government, and the resolution of Congress of December 3, 1818, declaring the admission of the State into the Union, refer to the principles of the Ordinance according to which the Constitution was to be formed, its provisions could not control the authority and powers of the State after her admission. Whatever the limitation upon her powers as a government whilst in a territorial condition, whether from the Ordinance of 1787 *or the legislation of Congress*, it ceased to have any operative force, except as voluntarily adopted by her, after she became a State of the Union. On her admission she at once became entitled to and possessed of all the rights of dominion and sovereignty which belonged to the original States. She was admitted, and could be admitted, only on the same footing with them. The language of the resolution admitting her is 'on an equal footing with the original States *in all respects whatever.* 3 Stat., 536. Equality of constitutional right and power is the condition of all the States of the Union, old and new." (Italics ours.)

In the instant case the Court of Appeals cited certain references to the Ordinance of 1787 in two Michigan cases, *Moore* v. *Sanborn*, 2 Mich., 519, and *Burroughs* v. *Peshtigo*, 59 Mich., 226; 26 N. W., 491. But it is settled both by the Supreme Court of the United States and the Supreme Court of Michigan that the Ordinance was supplanted by the Constitution of that state. In *The La Plaisance Bay Harbor Company* v. *City of Monroe*, Walker's Chancery, 155, where the provision as to navigable waters and carrying places was in question, it was held that the Ordinance of 1787 was "no part of the fundamental law of the State, since its admission into the Union. It was then superseded by the State Constitution, and such parts of

it as are not found in either the Federal or State Constitutions, were then annulled by mutual consent."

In *Sands* v. *Manistee River Improvement Company*, 123 U. S., 288, it was claimed that a statute of Michigan providing for certain tolls with respect to the Manistee River was unconstitutional as in violation of the Ordinance of 1787. This Court said:

> "There was no contract in the fourth article of the Ordinance of 1787 respecting the freedom of the navigable waters of the territory northwest of the Ohio River emptying into the St. Lawrence, which bound the people of the territory, or of any portion of it, when subsequently formed into a State and admitted into the Union.
>
> The Ordinance of 1787 was passed a year and some months before the Constitution of the United States went into operation. Its framers, and the Congress of the confederation which passed it, evidently considered that the principles and declaration of rights and privileges expressed in its articles would always be of binding obligation upon the people of the territory. The Ordinance in terms ordains and declares that its articles 'shall be considered as articles of compact between the original States and the people and States in the said territory, and forever remain unalterable unless by common consent.' And for many years after the adoption of the Constitution, its provisions were treated by various acts of Congress as in force, except as modified by such acts. In some of the acts organizing portions of the territory under separate territorial governments, it is declared that the rights and privileges granted by the Ordinance are secured to the inhabitants of those territories. *Yet from the very conditions on which the States formed out of that territory were admitted into the Union, the provisions of the Ordinance became inoperative except as adopted by them.* All the States thus formed were in the language of the resolutions or acts of Congress, 'admitted into the Union on an equal footing with the original States *in all respects whatever.*' Michigan, on her admission, became, therefore, entitled to and pos-

sessed of all the rights of sovereignty and dominion which belonged to the original States, and could at any time afterwards exercise full control over its navigable waters except as restrained by the Constitution of the United States and laws of Congress passed in pursuance thereof." (Pages 295-6; italics ours.)

b.

THE COURT OF APPEALS WAS IN ERROR IN STATING IN ITS OPINION THAT THE "SAME PRINCIPLE" AS THAT CONTAINED IN ORDINANCE WAS PRESERVED IN THE ILLINOIS CONSTITUTION.

The Court said (256 Fed., 800):

> "It is immaterial to inquire whether the Ordinance is still in force, or was superseded by the Illinois Enabling Act, or the act of admission, because the same principle is preserved in those statutes, and in the Illinois Constitution."

By the words, "those statutes," the Court refers to the Acts for the government of the Territory, which, as we have pointed out, this Court in the *Van Brocklin* case, *supra*, said "had no force in any state after its admission into the Union under the Constitution."

The principle was not "preserved * * * in the Illinois Constitution." Neither in the Constitution of 1818, or in any succeeding Constitution is the provision of the Ordinance in regard to navigable waters, or any of the early statutes in question, adopted or incorporated.

It has been expressly held both by this Court and by the Supreme Court of Illinois, that the provision in question, whether in the Ordinance or the legislation referred to, did not have any effect after the Constitution of 1818 was adopted. See

Escanaba Co. v. *Chicago, supra.*

In *Dixon* v. *The People*, 168 Ill., 179, and *People* v. *Thompson*, 155 Ill., 451, it is held that the Ordinance has no force in Illinois.

The Court of Appeals in the instant case quotes from the opinion of this court in *The Montello*, 20 Wall., 430, the following:

> "To preserve the natural character of all the rivers leading into the Mississippi and St. Lawrence and to prevent a monopoly of their waters, was the purpose of the Ordinance of 1787 declaring them to be free to the public."

This Court in that case, was considering the regulation of steamboat navigation on the Fox River, which, with the Wisconsin River, from earliest times were navigable rivers in the true sense. We deal with that case more fully in another part of this brief. (*Post*, p. 61.) Here we point out that the situation in Wisconsin was radically different from that in Illinois.

In the Act of Congress of August 6, 1846, to enable the people of Wisconsin territory to form a constitution and a state government and for the admission of such State into the Union, it was provided that:

> "The said State of Wisconsin shall have concurrent jurisdiction on the Mississippi, and all other rivers bordering on the said State of Wisconsin, so far as the same shall form a common boundary to said state and any other state or states now or hereafter to be formed or bounded by the same; and said rivers and waters, and the navigable waters leading into the same, shall be common highways, and forever free, as well to the inhabitants of said state as to all other citizens of the United States, without any tax, duty, impost or toll therefor."

No such provision was contained in the Act enabling the formation of the State of Illinois.

And the Constitution of Wisconsin, adopted pursuant to this Act, contained the following as Section 1, Article 9:

"The River Mississippi and the navigable waters leading into the Mississippi and St. Lawrence, and the carrying places between the same, shall be common highways and forever free, as well to the inhabitants of the state as to the citizens of the United States, without any tax, impost or duty therefor.

In *Wisconsin* v. *Cunningham*, Wis., 15 L. R. ., 561, it was held that the Ordinance and the organic ct which was adapted only to the territorial condition Wisconsin, became obsolete and ceased to have any erative force, except as voluntarily adopted by her ter she became a state of the Union.

But even where provisions of the Ordinance have been dopted as part of the organic law of the state, it has ever been held that any Act of Congress for the regu- tion of commerce applied to streams which were not in ct navigable for the purposes of useful commerce, at e time of the passage of such Act, and in *State* v. *Carenter*, 68 Wis., 165, it was held that, notwithstanding the corporation of the Ordinance into the Constitution of Visconsin, an injunction would not issue to prevent the rection of a structure in a river which had ceased to be f any practical use for commerce. We shall refer to this ase at greater length hereafter.

Counsel argued in the court below that Congress, hav- ng determined to preserve the public character of the avigable rivers in the Northwest Territory, it was not ithin the competency of the State to abrogate its ac- ion. No such question is presented in the record. The State has not attempted to abrogate the action of Con- gress. Those Acts ceased to have any effect by the mutual consent of the people of Illinois and the United States hen the State was organized.

Counsel cited in the lower court, in this connection, *United States* v. *Sandoval*, 231 U. S., 28, 38. *Coyle* v. *Oklahoma*, 221 U. S., 559, 574. Neither case has any

bearing. The *Sandoval* case was a proceeding by indictment for introducing liquor into the Indian country, contrary to the Act of January 30, 1897; that Act was not one for the government of Indians in any particular Territory, but it applied to the Indians, who were the wards of the Nation, upon Indian lands wherever situated. Nor question of equality between a newly admitted State and an old State, could arise under it. The sole question, as stated by Mr. Justice Van Deventer, was (p. 38)

> "whether the status of the Pueblo Indians and their lands is such that Congress competently can prohibit the introduction of intoxicating liquor into those lands notwithstanding the admission of New Mexico to statehood."

The Enabling Act had provided that the terms "Indian" and "Indian Countries" should include the Pueblo Indians in New Mexico. The court rehearsed the history and condition of those Indians and their title to the lands, and came to the conclusion that the status of the Pueblo Indians, and their land, was such as to bring them within the power of Congress to exercise jurisdiction over the Indians and their affairs. It was pointed out by the court that this power was rightfully exercised by the United States "over all dependent Indian communities within its borders, *whether within its original territory or territory subsequently acquired, and whether within or without the limits of a State.*" (p. 46.) And further:

> "Being a legitimate exercise of that power, the legislation in question does not encroach upon the police power of the State or disturb the principle of equality among the States." (p. 49.)

The case of *Coyle* v. *Oklahoma, supra,* concerned the right of the State to remove its capital. The opinion reviews the authorities upon which we rely and sustains the principle that "each State must be admitted upon an equality with all other States."

Point V.

THE COURT OF APPEALS FAILED TO DISTINGUISH BETWEEN STREAMS HELD TO BE "FLOATABLE" UNDER THE LAWS OF CERTAIN OF THE STATES, AND NAVIGABLE WATERS OF THE UNITED STATES, SUBJECT TO THE CONTROL OF CONGRESS UNDER THE COMMERCE CLAUSE OF THE CONSTITUTION, AND IN CONSEQUENCE ADOPTED AN ERRONEOUS DEFINITION OF "NAVIGABLE WATERS OF THE UNITED STATES."

The opinion of the Court of Appeals discloses a fundamental misconception of what Mr. Justice Miller, in considering what are navigable waterways of the United States, referred to as "the great point of the navigability of streams of the United States concerning interstate and international commerce." This misconception is markedly evidenced by the following reference by the Court of Appeals to *Brown* v. *Chadbourne*, 31 Me., 9:

> "The statement, 'A way over which one has a right to pass, may be periodically covered with water,' gives rise to the suggestion that a river in the latitude of the Des Plaines is ordinarily frozen over during some of the winter months, and in a new country where the roads, if any, are very poor and inadequate, such a river would afford an excellent highway at least in many places, for teams drawing sleighs." (256 Fed., 803.)

It appears from the opinion as a whole that a stream over which sleighs could be drawn in winter, and down which logs could be floated in other parts of the year, would in the judgment of the Court of Appeals, be a navigable waterway of the United States, provided always that it happened to be in what was formerly the Northwest Territory.

The necessary result of the application made by the court of the Ordinance of 1787 and the early statutes is that every stream, over which, prior to 1787 men passed

in skiffs or canoes, or indeed down which logs could be floated, within the territory to which the Ordinance referred, must for all time be deemed navigable waters of the United States within the meaning of the Commerce clause of the Constitution and subject to all statutes for the control of interstate commerce which might be enacted thereunder, regardless of whether or not such streams were susceptible of valuable use for commerce.

The Court of Appeals saw that this was the logical and necessary conclusion of its reasoning and in paragraphs 5, 6, of its opinion (256 Fed., 802) it collected together a number of cases from the courts of various States to sustain this proposition. Most of the cases have to do with the question of the right to float logs in certain small streams. Such cases are:

Gaston v. *Mace*, 33 W. Va., 14; 5 L. R. A., 392.
Stratton v. *Currier*, 81 Me. (incorrectly cited as 81 Mo.), 497.
Moore v. *Sandborne*, 2 Mich., 519.
Wadsworth, Adm'r., v. *Smith*, 11 Me., 278.
Brown v. *Chadbourne*, 31 Me., 9.
Lewis v. *Coffey County*, 77 Ala., 190.
Morrison Bros. & Co. v. *Coleman*, 87 Ala., 655.
Carter v. *Thurston*, 58 N. H., 104.
Kamm v. *Normand*, 50 Or., 9.

The Court overlooked the well recognized fact that streams may be deemed navigable or floatable under local laws for certain purposes and yet not be navigable waterways of the United States.

Mr. Justice Miller, in *Duluth Lumber Co.* v. *St. Louis Boom & Improvement Co.* (17 Fed., 419), distinctly emphasizes the point we are now making. That case concerned the St. Louis River, a much more important stream than the Desplaines, for it was actually navi-

gated by small water craft, even including steamboats, at the time the case arose. Mr. Justice Miller said:

> "It is proper to say that many statutes of many states for the very purpose of preserving these small streams for the use of sawlogs and various kinds of small water craft, declare such streams navigable. There is hardly a stream in the western country that can float a log that has not, by statute of the state, been declared to be navigable to prevent people from putting dams across it; *but that has nothing to do with the great point of the navigability of streams of the United States concerning interstate navigation or international navigation.* Those are statutes made by the states for their own uses, and they can declare, and often do declare, that a little branch is a navigable stream. That does not make it so within the meaning of any constitutional provision, treaty, or ordinance of the United States." (pg. 424, italics ours.) (See, also, *State* v. *Carpenter,* 68 Wisc. 165.)

A reading of the opinions in certain of the cases cited by the Court of Appeals in the instant case shows that the judges who gave those opinions did not overlook the distinction in question. They did not intend to hold, or understand that they were holding, that "floatable streams" were "navigable waters of the United States." Thus, in the first case cited by the Court of Appeals in this connection, *Gaston* v. *Mace, supra,* the court pointed out that the stream there in question, though floatable, was not a navigable stream capable of being navigated by boats or lighters and on which commerce might be carried on.

The court said (5 L. R. A., 396):

> "In the United States there are three classes of navigable streams: (1) tidal streams that are held navigable in law whether navigable in fact or not; (2) those that, although nontidal, are yet navigable in fact for boats or lighters, and susceptible *for*

valuable use for commercial purposes; (3) tho streams which, though not navigable for boats lighters, are floatable or capable of valuable use bearing logs, or the products of mines, forests a tillage of the country they traverse, to mills or ma kets. * * *

The very definition of the third class of navigal streams shows that these streams would not be cluded in the common-law definition of a naviga stream,—that is one in which the tide ebbs a flows,—nor could it come within the civil law defi tion of a navigable stream, which is capable of ing navigated by boats or lighters, and on wh commerce may be carried on.

The third class of navigable streams are genera called floatable streams; and though the public ha right to use them as a public highway by floati logs and other products of forest, mines and till down these streams to mills and market, yet the parian owners along such streams own the bed them as well as their banks, differing in this resp from other navigable streams." (Italics ours.)

Likewise, in *Heyward* v. *Farmers Mining Compa* (42 S. C. 138, 19 S. E., 963), also referred to by the Co of Appeals, the court distinguished between naviga streams under the control of the states and such navi ble waters of the United States as were subject to laws of interstate commerce. In that case, the co in holding that the trial court was in error in enume ing certain conditions as necessary to the navigabi of a stream, one of the conditions being that it m make connections with other highways, said:

> "This test has only been applied in cases wh the question was whether a stream was a navig water of the United States. There are certain ditions to be considered in determining the nav bility of waters of the United States, so as to ject them to the laws of interstate commerce, do not apply to navigable streams under the con of the state. Among these conditions is that r tioned by the circuit judge." (p. 152.)

The Court of Appeals, in applying the test of the capacity of a stream for floatage of lumber, cited *Moore* v. *Sandborne* (2 Mich., 520), which was an action to recover damages for obstructing Pine River, a small stream of limited capacity for floating; but the Supreme Court of Michigan recognized the distinction between such floatable streams and navigable waterways of the United States in *City of Grand Rapids* v. *Powers* (50 N. W., 661; 89 Mich., 94, page 111). The court said:

> "Whatever may be the power of the legislature in waters 'strictly navigable' to fix an arbitrary line beyond which riparian owners cannot go, or to delegate to a municipality that power, I am satisfied that no such right exists in the waters of Grand River at the rapids, or certainly in that part of the waters which are *not now navigable* for any purpose. The rights of the riparian owner, under our laws, is subject only to the public use for the purposes of navigation; and there is a manifest difference between public streams that can be used successfully for the running of boats and vessels for the purpose of commerce, and those which are only capable of being used for the floatage of lumber and logs in rafts or single pieces. The riparian owners are entitled to the beneficial and sole use of the latter streams, except for floatage; *and when such streams have become unfitted for valuable public use, and have actually ceased to be used for public highways, there is no more reason for holding them to be public than in the case of a land highway which has been abandoned and is useless.*" (Italics ours.)

This right of floatage, which has nothing to do with navigation, under the laws of the United States, is protected only in states where there are interests which require such protection. In Illinois it has never been recognized. Thus in *Hubbard* v. *Bell* (54 Ill., 110), it was held that the fact that a river was capable of floating logs at certain seasons did not render it subject to the *jus publicum* even for that purpose. The court,

referring to the contention of counsel that the stream in question was subject to such use, said:

> "The principle is distinctly asserted that the public have the right to the free use of all streams which are susceptible of any valuable floatage. * * *
>
> However necessary it may be in the great lumbering States of Maine and Michigan that private rights should yield to prevailing interest, no such interest exists in this state, and we shall be careful that the rights of its citizens shall not be wrongfully invaded upon such pretenses as are set forth in this record, and sustained by such considerations as influenced the judgments of the courts whose opinions we have considered." (p. 118.)

In *Schulte* v. *Warren* (218 Ill., 108), the court referred to *Hubbard* v. *Bell*, saying:

> "In this state the public have an easement for the purpose of navigation in waters which are navigable in fact, regardless of the ownership of the soil, and the question whether these waters are navigable depends upon the question whether they are of sufficient depth to afford a channel for useful commerce. In some states where lumber interest has been regarded of first importance the courts have held that waters which are capable of floating logs are navigable; but in *Hubbard* v. *Bell* (54 Ill. 110), this court declined to adopt this rule and adhered to the doctrine that *navigable waters must be capable of practical general uses.* The rule stated by Lord Hale in his treatise *De Jure Maris* that the stream to be navigable must furnish 'a common passage for the King's people' must be 'of common or public use for the carriage of boats and lighters,' must be capable of bearing up and floating vessels for the transportation of property conducted by the agency of man, was approved. (*Joliet and Chicago Railroad Co.* v. *Healy*, 94 Ill. 416.)
>
> A stream is navigable in fact only where it affords a channel for useful commerce and of practical utility to the public as such. The fact that there is water enough in places for rowboats or small launches answering practically the same purpose, or that hunters and fishermen pass over the water with boats ordinarily used for that purpose, does not render the waters navigable." (Page 119; italics ours.)

Point VI.

THE FOX RIVER REFERRED TO IN THE MONTELLO CASE, IN ITS NATURAL CONDITION AND AFTER THE SETTLEMENT OF THE COUNTRY, WAS LARGELY USED FOR COMMERCE. THE DESPLAINES WAS NOT TO ANY EXTENT WHATEVER. THE PHYSICAL CHARACTERISTICS OF THE FOX AS COMPARED TO THOSE OF THE DESPLAINES EXPLAIN THE MARKED DIFFERENCE IN THE HISTORY OF THE USE OF THE TWO STREAMS.

The Court of Appeals referred to *The Montello,* 20 Wall., 440, and that case has largely been relied upon both by the appellee and the State of Illinois in the litigation concerning the proposed dam. The Fox River there in question and the DesPlaines have nothing in common in physical characteristics and little in historical conditions. From the earliest times the former river was a channel for useful commerce and the *Montello* suit itself arose out of the question whether steamboats navigating its waters were subject to governmental regulations. Not even a gasolene launch has ever navigated the waters of the DesPlaines.

In *The Montello* the court said (20 Wall., 440):

> "In more modern times, and since the settlement of the country, and before the improvements resulting in an unbroken navigation were undertaken, a large interstate commerce has been successfully carried on through this channel. This was done by means of Durham boats, which were vessels from seventy to one hundred feet in length, with twelve feet beam, and drew when loaded two to two and one-half feet of water. These boats, propelled by animal power, were able to navigate the entire length of Fox River, with the aid of a few portages, and would readily carry a very considerable tonnage."

In the case of the DesPlaines the record shows not one instance since the days of settlement, of the use of the

river for any commerce. The use of the one, and the failure to use the other, are easily understood when the physical characteristics of the two are compared. A Government report shows that the Fox River up to the portage to the Wisconsin, is 154½ miles in length, fifteen miles being through Lake Winnebago, which has a depth of twenty feet; that the river itself, except at the point where the rapids, hereinafter to be mentioned, occur, for the most part *had no perceptible current, the slope being slight,* and *except at one or two places where the bottom was soft sand, the general depth of the upper river, at an ordinary height of water, was between four and five feet.* The obstructions in its natural state were rapids, falling 170 feet in 28 miles, and 88 feet of these were in two falls, and, in the natural condition of the river the only portages required, being around these falls, *aggregated less than a mile.* The depth of the lower Fox—and it was in this portion that the rapids appeared—was from eight to ten feet, and the variation in depths during the year, was not more than three or four feet, so that there was at least a depth of from four to six feet at any stage of the water. (Abst., 3035, 3040.)

The DesPlaines River is over 100 miles in length. No claim is made that the upper river is, or ever has been, navigable. We have described the lower portion in the statement of facts. It is a series of rapids and pools. The Supreme Court of Illinois in *State* v. *Economy Light & Power Co.,* said:

> "The bottom of the river from Lockport to the dam in question, with the exception of that portion under Lake Joliet, is covered with a large number of boulders. The bottom of Lake Joliet is soft. The evidence shows that these boulders are of various sizes, some of them between two and three feet in diameter. Some of them are covered entirely with water, while others project slightly above the sur-

face of the water. It is also shown that in going down the river in a skiff or any kind of boat there is great danger of coming in contact with these boulders. The current is so strong that it is not possible to row a boat upstream over these rapids. In addition to the natural barriers already spoken of, the evidence shows that the stream is tortuous and the channel very narrow at places. The slopes in the river already given do not represent the greatest fall that can be found in this stretch. The evidence shows that there is near the head of Treat's Island a fall of seventeen feet to the mile, and near the foot the slope is eighteen feet to the mile, and in the right-hand channel opposite Treat's Island there is a space of five hundred feet in which the fall is fifty feet to the mile, and if shorter distances are taken even greater slopes than these will be found to exist. At one place near the mouth of the river there is a fall for three or four hundred feet of twenty feet to the mile."

The Supreme Court of Illinois also found from e gauge readings at Riverside that there were om 24 days in 1890 to 213 days in 1895 dur- g which the river was dry at the Riverside uge, Riverside being 28 miles above Joliet. id further, "that there were many days when there is less than six inches of water at Riverside, so that e dry days and the days showing less than six inches scharge were from 120 days in 1888 to 300 in 1901.

We shall have occasion later to refer to the significance the Riverside gauge readings.

The distinction made by this court in *United States* v. *Grande Dam and Irrigation*, 174 W. S., 690, between Fox River and the Rio Grande, is even more appli- ble to the DesPlaines as compared to the Fox. This rt said (p. 699):

"Obviously, the Rio Grande within the limits of New Mexico is not a stream over which in its ordi- nary condition trade and travel can be conducted in

the customary modes of trade and travel on water. Its use for any purposes of transportation has been and is exceptional, and only in times of temporary high water. The ordinary flow of water is insufficient. *It is not like the Fox River, which was considered in The Montello, in which was an abundant flow of water and a general capacity for navigation along its entire length, and although it was obstructed at certain places by rapids and rocks, yet these difficulties could be overcome by canals and locks*, and when so overcome would leave the stream in its ordinary condition, susceptible of use for general navigation purposes. We are not, therefore, disposed to question the conclusion reached by the trial court and the Supreme Court of the Territory, that the Rio Grande within the limits of New Mexico is not navigable." (Italics ours.)

Point VII.

THE RIGHT OF CONGRESS TO LEGISLATE AT ALL ARISES UNDER THE COMMERCE CLAUSE OF THE CONSTITUTION, WHICH DOES NOT APPLY TO SUCH STREAMS AS THE DESPLAINES. IF THE ACT OF 1899 APPLIES TO THAT STREAM IT IS VOID. THE COURT OF APPEALS ERRONEOUSLY HELD THAT THE RIGHT TO SO LEGISLATE MIGHT ARISE UNDER THE WAR POWERS OF CONGRESS.

The answer of appellant as amended avers that the purpose of the Act of March 3, 1899, is to protect existing commerce, and that there is no commerce on the Des Plaines River to be protected, and that the Act does not apply to it (p. 3235); and that the river is not in fact capable of navigation for purposes of useful commerce, and that neither Section 8, Article 1 of the Constitution of the United States, nor the Act of Congress of March 3, 1899, or any other Act of Congress, is applicable to such stream. It is further averred that if the Act of 1899, or any Act of Congress mentioned in the bill, or relied upon, should be held to establish the character of

DesPlaines as navigable, then said Acts, and each of
n are, and is, unconstitutional. It further insists that
he Act of 1899, or any other Act of Congress, applies
he DesPlaines, the same are null and void under the
visions of the Fifth Amendment to the Constitution
he United States, forbidding the taking of property
hout due process of law, and the taking of private
perty for public use without just compensation (pp.
5-3236).

The Court of Appeals, in the opinion in the instant
e, in effect denies that the right of Congress to legis-
e at all arises only under the Commerce clause of the
nstitution. In its opinion (256 Fed., 799) appears
following:

"It is argued that the Act of 1899 was passed under
the constitutional power to regulate interstate co-
merce and as no such commerce on the DesPlaines
then existed, the statute can have no application, and
that if the statute be construed to reach beyond this,
it was to that extent beyond the legislative power.
Even so it might be sustained under the war power.
We have lately had a significant reminder of the in-
adequacy of railroad transportation in time of
stress." (Italics ours.)

There is little that Congress may not do in time of
r, under its war powers. The implication in the por-
n of the opinion just quoted, that in time of peace its
ht to regulate railroads, rivers and other means of
erstate commerce, may be referred to, and based on
se powers, is startling and has no warrant in any
ision which we have been able to find. If it were
nd doctrine the safeguards of property and human
erty, which the Constitution contains, would largely
impaired.

That the power of Congress to enact such legislation as
Act of March 3, 1899, arises only out of the Commerce

clause of the Constitution has been repeatedly stated by this Court. Chief Justice Marshall in *Gibbons* v. *Ogden*, 9 Wheat., 1 (p. 190), said:

> "If commerce does not include navigation the government of the Union has no direct power over that subject."

In *Monongahela Navigation Co.* v. *United States*, 148 U. S., 312, 335, Brewer, J., said:

> "Upon what does the right of Congress to interfere in the matter rest? Simply upon the power to regulate commerce."

To the same effect is *United States* v. *Cress*, 243 U. S., 316.

This Court has pointed out that

> "what the Constitution and the Acts of Congress have in view is the promotion and protection of commerce in its international and interstate aspect, and a practical construction must be put on these enactments as intended for such large and important purposes."
>
> *Leovy* v. *United States*, 177 U. S., 621-633.

It seems a necessary conclusion that Congress in passing any Act under this power to regulate commerce, must have had in mind, and its constitutional power must be limited to, commerce as carried on at the time of the passage of the Act, and that any such Act must be construed as applying only to waters of the United States, navigable in fact for commerce as then conducted.

The trial court and the Court of Appeals in the instant case determined that the Act of March 3, 1899, applies to the DesPlaines River, by a test which as we have shown wholly disregards this view and which attributes to Congress a power which it does not possess. Under the "practical construction" of the Constitution which this Court held to be the proper one, Con-

gress had power by the Act of 1899, to protect and regulate commerce as then existing, upon streams then in fact navigable. But it had no power to measure navigability by going back a century and taking in every stream, brook, or creek over which early fur traders, explorers, or adventurers, driven by dire necessity, managed to force their canoes or other frail craft. The lower courts, however, predicated their decisions not alone upon the existence of such power in Congress, but upon a curious extension of it. According to their reasoning, Congress had the power to bring within the scope and application of the Act of March 3, 1899, streams in the Northwest Territory, while it could not have applied it to streams of the same character in the original states. We submit that if Congress, in passing the Act of 1899, intended as the test of navigability of streams in the old Northwest Territory, the use which was made of them in 1787, or 1804, or 1809, and for streams outside of that Territory, the test of navigability laid down by the Supreme Court in the *Montello case,* 20 Wall., 430—

> "to give it the character of a navigable stream, it must be generally and commonly useful to some purpose of trade or agriculture"—

then the Act, as applied to the former streams at least, would have been void. But it would be extremely unfair to Congress to attribute to it any such intention.

The Supreme Court in the *Leovy* case, *supra,* gave its understanding of what Congress meant, when, in referring to the Act of 1890, it said:

> "It is a safe inference from these and other cases to the same effect which might be cited, that the term 'navigable waters of the United States' has reference to commerce of a substantial and permanent character to be conducted thereon." (p. 632.)

We further contend that even though the DesPlaines River had been of navigable capacity, yet because there

is not, and has not been, within the memory of any living witness, nor within the historical period of the settlement of the country, any commerce upon this river, Congress was without power to pass any law which would require the riparian owner to procure a permit to erect a dam in a stream, to the bed of which he held title.

A very important and disastrous result of any such construction of the Commerce clause as the Court of Appeals has given it in the instant case, and of such Acts as that of March 3, 1899, is indicated in the opinion of the Supreme Court of Michigan, in *Valentine* v. *Berrien Springs Water Company,* 128 Mich., 280; 87 N. W., 370, 374, where the court, in discussing the question whether or not dams and other obstructions might be placed in the St. Joseph River, said:

> "The future prosperity of many places in the State is largely dependent upon the use which may be made of rivers of this character. If dams cannot be built and power (the cheapest in the world) thus furnished, water supplied, and the navigation of rivers improved, these cities, villages and country towns will lose the greatest benefits which nature has placed within their reach."

The title to the bed of the stream was in appellant, regardless of whether it was or was not a navigable stream.

State v. *Economy Light & Power Co., supra.*
Schulte v. *Warren,* 218 Ill., 108.
Lorman v. *Benson,* 8 Mich., 18.
City of Grand Rapids v. *Powers* (Mich.), 50 N. W., 661, and cases therein cited.

Having title, the owner may do with it as he chooses, provided he does not obstruct navigation, or damage other riparian owners along the stream above or below him.

Grand Rapids v. *Powers, supra.*
City of Kewanee v. *Otley,* 204 Ill., 402.
Yates v. *Milwaukee,* 10 Wall., 497.

That property right can only be invaded under the Commerce clause in so far as may be essential to protect an existing easement for navigation.

So far as the United States is concerned, the riparian owner holds his title subject only to the Constitutional power of the Government to regulate, and prevent the obstruction of commerce. It possesses no other power to interfere. But regulation, or obstruction, of commerce presupposes the existence of commerce.

In *United States* v. *Rio Grande Irrigation Co.*, 174 U. S., 690, at p. 709, in discussing the right of the Attorney General to proceed under the Act of 1890, which was a similar statute, the Supreme Court said:

> "The question is always one of fact, whether such appropriation substantially interferes with the navigable capacity, within the limits where navigation is a recognized fact."

No case will be found where the right of Congress to interfere has been sustained except to protect existing commerce. Mr. Taft, as Secretary of War, in regard to this very dam, said if the DesPlaines River had been navigable, and application had been made for approval of the plans of the dam, if the Department concluded that it would not interfere with navigation, then it was not within the power of the Department to withhold a permit. This could only mean that under such circumstances, there would have been no Constitutional *power* in the government to prevent the obstruction. (Abst., 1937.)

In *Leovy* v. *United States*, 177 U. S., 621, 637, this Court said that because

> "Red Pass, in the condition it was at the time this dam was built, was not shown by adequate evidence to have been a navigable water of the United States, *actually used in interstate commerce*"

the court should have charged the jury in favor of the defendant.

In that opinion (page 633) the Supreme Court criticized the instructions of the trial court, because under them all streams upon which a skiff or small lugger could float, would constitute navigable water of the United States, and clearly intimated that under such a construction, Congress would have had no Constitutional power to enact such a statute. It said:

> *"If such were the necessary construction of the statutes here involved, their validity might well be questioned."*

In the court below counsel argued that the opinion of the Supreme Court in the *Leovy* case, had no bearing on the instant case, because of a difference in the Acts under which the two proceedings were brought. They pointed out that the indictment in the former case was under the Act of September 13, 1890, prohibiting the obstruction of commerce, while the instant case was brought under the Act of March 3, 1899, to prevent the placing of an obstruction in navigable waters.

Their contention seemed to be that the *Leovy* case has no weight in determining the present issue, because the Act of March 3, 1899 does not refer to the obstruction of commerce, but prohibits the building of obstructions in navigable rivers. Counsel ignored entirely the reasoning by which this Court arrived at its conclusion. They further ignored the fact that in that case the Government *"contended that the policy of Congress in respect to the authority of the Secretary of War in the matter of obstruction to navigation, has been greatly changed and modified by the Act of March* 3, 1899" (177 U. S., 637), and that this Court said that in the view that it took of the case it was not called upon to express an opinion on that question. The view, there referred to, appears on

pages 632 and 633 of the opinion. This Court's remarks concerned the proper definition of the words "navigable water of the United States," and they are equally applicable to a proceeding under either Act. The instruction which the trial judge gave was quite in line with the contentions of the counsel for the Government in the instant case, and as to it this Court said:

> "If these instructions were correct, then there is scarcely a creek or stream in the entire country which is not a navigable water of the United States. Nearly all the streams on which a skiff or small lugger can float discharge themselves into other streams or waters flowing into a river which traverses more than one state, and the mere capacity to pass in a boat of any size, however small, from one stream or rivulet to another, the jury is informed, is sufficient to constitute a navigable water of the United States.
>
> Such a view would extend the paramount jurisdiction of the United States over all the flowing waters in the states, and would subject the officers and agents of a state, engaged in constructing levees, to restrain overflowing rivers within their banks, or in regulating the channels of small streams for the purposes of internal commerce, to fine and imprisonment, unless permission be first obtained from the Secretary of War. If such were the necessary construction of the statutes here involved, their validity might well be questioned. But we do not so understand the legislation of Congress. *When it is remembered that the source of the power of the general government to act at all in this matter arises out of its power to regulate commerce with foreign countries and among the states, it is obvious that what the Constitution and the acts of Congress have in view is the promotion and protection of commerce in its international and interstate aspect, and a practical construction must be put on these enactments as intended for such large and important purposes.*
>
> We also think that these instructions are open to the further criticism that they contain no reference to the nature or extent of the traffic or trade carried on in Red Pass before the erection of the dam. In-

> deed, the charge necessarily implies that the defend ant was guilty if there was merely a capacity fo passing from Red Pass into theMississippi River o any sort of a boat. Very different was the view ex pressed by Chief Justice Shaw when he said it i not 'every small creek in which a fishing skiff o gunning canoe can be made to float at high water which is deemed navigable, but in order to give it th character of a navigable stream it must be generall and commonly useful to some purpose of trade o agriculture. (21 Pick., 344.)" (p. 633; italics ours.

In the early days the Great Miami River was fre quently used by explorers and fur traders. In *Koehn* v. *City of Dayton*, 77 Ohio St., 341, 119 N. E., 651, th plaintiff sought to enjoin the City of Dayton from con structing a dam in the bed of that river claiming that i was a navigable stream. In the Court of Appeals o Montgomery County an opinion was rendered March 14 1917, certified copy of which we have, in which it was hel that the Great Miami River at Dayton was not a navi gable river, saying:

> "We find from an examination of the authoritie that the question of the navigability of a stream i one of fact to be determined from the evidence de scribing its condition at the time of the inquiry an during a reasonable period of time prior to the in quiry."

The Supreme Court of Ohio affirmed the opinion hold ing that the Great Miami was not a navigable stream a the point stated and that the construction of the dam would not in anywise impede or impair navigation.

Point VIII.

THE COMMERCE CLAUSE OF THE CONSTITUTION DOES NOT APPLY TO A STREAM WHICH IS WHOLLY WITHIN THE LIMITS OF ONE STATE AND WHICH DOES NOT, BY A NAVIGABLE CHANNEL, CONNECT WITH WATERS MAKING IT AVAILABLE FOR INTERSTATE COMMERCE.

In *Veazie* v. *Moor,* 14 How., 568, the Supreme Court considered the validity of an act of the Legislature of the State of Maine giving to one Moor the exclusive right to run steamboats on the Penobscot River. This was attacked as in violation of the Commerce clause of the Constitution. The Penobscot is entirely within the limits of Maine, and eight miles from its mouth it passed over a fall and was crossed by dams, and for that space, was not, and never had been, navigable. A canal of eight miles, or the improvement of the river, would have opened the Penobscot to the sea, but it was held by the Supreme Court that the Penobscot was not a navigable stream, and that the Commerce clause of the Constitution did not apply to a river of that kind.

When the *Montello* case, 11 Wall., 411, was first before the Supreme Court, it was sent back, because, though it appeared that the Fox River was used by steamboats for transporting products of Wisconsin, it did not appear that it was navigable to Lake Michigan, and until that was shown, it could not be declared to be a navigable water of the United States.

While the DesPlaines has its source in Wisconsin, no serious claim is made, and no evidence was introduced to show, that in that State it ever had been, or could be used, even by canoes. Even if the DesPlaines were navigable from Lockport to its mouth it would not be a navigable water of the United States, for, as we shall show, the upper Illinois is not, and never was, navigable.

Point IX.

"WHEREVER IN THE COURSE OF A STREAM, IT CEASES T BE A PUBLIC HIGHWAY FOR COMMERCE BETWEEN THI AND OTHER STATES AT THAT POINT ITS NATIONAL CHA ACTER TERMINATES AND ABOVE THAT IT IS WITHI THE EXCLUSIVE JURISDICTION OF THE STATE."

The language of this heading is quoted from *Neade houser* v. *Indiana*, 28 Ind., 257, where the court was co sidering whether or not a certain portion of the Wabas was a navigable stream.

By the bill in the instant case it is claimed that th Sanitary District Canal, the DesPlaines and the uppe Illinois constitute a continuous waterway. Neither th upper Illinois, the DesPlaines nor the Sanitary Distri Canal are navigable waters of the United States. Th is true under the doctrine of *Veazie* v. *Moor*, 14 How 568; the *Montello* case, 11 Wall., 411; the *Neaderhous* case just cited; *United States* v. *Rio Grande Irrigatio Co.*, 174 U. S., 690; and *Commonwealth* v. *King*, 150 Mass 221. The decision of each of those cases was governe by the doctrine that whenever a stream ceases to be na igable, it is no longer within the maritime jurisdiction the United States. The Illinois ceased to be navigab far below the mouth of the DesPlaines.

a.

THE UPPER ILLINOIS IS NOT NAVIGABLE.

The upper Illinois above LaSalle was never a navigab stream. This fact has been officially recognized by th United States, the State of Illinois and the Commissio ers of the Sanitary District, both before and since th waters of Lake Michigan were added to the DesPlain and the Illinois.

LaSalle in 1682, stated that in the summer "there is no water at all in the river as far down as Fort St. Louis (Starved Rock near Ottawa), where the navigation of the Illinois River begins, at this season, and extends as far as the sea." (Abst., 257, 295.) And also that "It would be easier to effect transportation from Fort St. Louis to the lake by land, using horses, which it is easy to get there." (Abst., 1724.)

And St. Cosme, writing at about the same time, and referring to Fort St. Louis, said "Here navigation begins." (Abst., 50.)

Practically the same point fixed by these early explorers has been recognized in the reports, both State and Federal, as the head of navigation on the Illinois. The first official report was made by Major S. H. Long in 1816, who stated that the Illinois was navigable "about 230 miles from its mouth." (Abst., 110.)

Post and Paul, in 1824, referred to the head of the navigable waters of the Illinois River as being at the Little Vermilion. This is far below the mouth of the DesPlaines. (Abst., 2425.)

The Act of Congress of June 13, 1902, provided for a report of plans and estimated cost "for a navigable waterway of seven and eight feet depths, respectively, from the *head of navigation of the Illinois River at LaSalle,* Illinois, through said river to Ottawa, Illinois." (32 U. S. Stats. at Large, p. 364.) It is significant that Congress here recognizes the fact that LaSalle was the head of navigation in 1902, and that notwithstanding the waters from Lake Michigan had then been added, improvements would be necessary in order to obtain even a seven or eight-foot depth between Ottawa and LaSalle.

We have elsewhere in this brief (p. 120) made ref-

erence to the numerous reports of engineers proving that navigation on the Illinois ceased at, or about, LaSalle.

The Legislature of Illinois early recognized that the Illinois River above LaSalle was not navigable, that it was doubtful whether it was wise to attempt to improve it for navigation from that point to Ottawa, and that above Ottawa a canal would be required as a matter of course. This was evidenced by the Act of February 15, 1831, which authorized the Canal Commissioners to employ an engineer to examine the Illinois River from the mouth of the Fox River down to the head of steamboat navigation;

> "and if, in their opinion, the navigation of the Illinois River can be improved by dams and locks, or otherwise, so as to secure its navigation as far upwards as the mouth of the Fox River, with as little expense, and as much utility, as canaling from the Fox River to the Little Vermillion, or foot of the rapids, they shall have power to terminate said canal at the mouth of the Fox River." (Laws of Illinois, 1831, p. 42.)

That the construction of the Sanitary District Canal and the introduction of Lake Michigan water through it, would not make the upper Illinois or DesPlaines navigable, was recognized by a joint resolution of the Illinois Legislature, adopted May 27, 1897. It contained the following recital:

> "Whereas, the construction of the Sanitary Canal of Chicago and the large volume of water required to flow through the same will bring lake and river navigation, *which are now* 320 *miles apart, within sixty miles of each other,* and the development of the intermediate section between Lockport and Utica will furnish a through route from the Great Lakes to the lower Mississippi by way of the lower Illinois River, and to the upper Mississippi by way of the Hennepin Canal, and further that the proportion of three routes constructed by the Sanitary District of Chicago will exceed the cost of extending

the largest useful navigation by way of the Illinois River to the lower Mississippi, together with that of the Hennepin Canal to the upper Mississippi." (Laws of Ill., 1897, p. 309.)

n 1900 the trustees of the Sanitary District presented nemorial to the War Department. (House Document 56th Cong., 2nd Session, 1900, 1901, p. 4.) In that morial, referring to the Sanitary District Canal, the stees said:

"To-day a river deeper than the draft of any lake vessel, and wide enough to float, three abreast, its broadest beams, is flowing westward and spilling its waters into the Illinois basin, where they must *flow on wide, shallow and useless to commerce,* because no proper channel garners the waters which should be contributing to the nation's wealth by doing the nation's work." (Proceedings Board of Trustees of the Sanitary District of Chicago, 1900, p. 6839.)

he memorial called on the United States to perform condition contained in Section 24 of the Illinois Act 1889, upon which the right of the United States to trol the Sanitary District Canal for purposes of navion, was to arise. Its conclusion was as follows:

"That law makes Chicago turn over to the United States Government its entire investment aggregating already, as has been shown, $34,269,244.51, upon one condition, namely, *that it shall improve the DesPlaines and Illinois Rivers for navigation to connect with this channel.* It remains, therefore, for those who guide the destinies of our common country to say whether the general government shall qualify as the recipient of the greatest and most magnificent gift which a single municipality has ever sought to bestow upon a nation."

e think it sufficiently appears from the foregoing that portion of the DesPlaines which the bill claims is a ection between parts of a continuous waterway, not at its lower end connect with a navigable water

of the United States, and that that navigable water begins some fifty miles below its mouth.

We will now consider the situation at the upper end of that stretch.

b.

THE SANITARY DISTRICT CANAL IS NOT A WATERWAY OF THE UNITED STATES.

In the words of the former president of the Sanitary District of Chicago, Robert R. McCormick, in his official message, 1909, nine years after the waters were turned in:

> "At the present time the drainage canal as a navigable waterway extends nowhere. * * * Navigation on the drainage canal is practically *nil* owing to the fact that the drainage canal ends 'in the air' with no market at its inner end." (Report of President, 1909, pp. 14, 24.) The "inner end" there referred to is the DesPlaines River.

The United States had no part in the construction of the Sanitary District Canal; it exercises no jurisdiction over it, and by the terms of the Act of the Illinois Legislature under which it is constructed, it will exercise none unless and until the United States makes the DesPlaines and the upper Illinois navigable.

But the primary and principal purpose of the Act of Illinois for the creation of drainage districts, was to provide for the preservation of the public health by improving the facilities for the final disposition of sewage and by supplying pure water.

> "The fact that a navigable waterway may be created is a mere incident, and not one of the purposes for which a sanitary district is created."

The Supreme Court of Illinois so held in *Beidler* v. *Sanitary District*, 211 Ill., 629, 638.

It is, of course, true that Congress has, for admiralty rposes, juridiction over canals built for, and dedi-ed to, commerce, and actually used for purposes of mmerce. It was so held in *Ex parte Boyer,* 109 U. 629, concerning the Illinois and Michigan Canal, ich, as the court pointed out, was built with lands, or proceeds thereof, granted by the United States for t purpose, and subject to a condition prescribed in grant, that the canal "when completed, should be d forever remain a public highway, for the use of the vernment of the United States."

In *Malony* v. *City of Milwaukee,* 1 Fed., 611, it is said t

> "an artificial waterway or canal opened by a state to public use, for purposes of commerce, and while in fact used as a highway of commerce between the states of the Union, and between foreign countries and the United States, is 'navigable water of the United States' within the meaning of that term as used to define and limit the jurisdiction of the admiralty courts."

But such is not the situation presented here.

The mere digging of a channel large enough to accom-date boats used in commerce and filling that channel h sufficient water, does not create a navigable water-y of the United States. If nothing more happened builder might fill it up again without the consent anyone. Dedication to commerce, and the existence commerce, are necessary before the admiralty jurisdic-n of the United States can apply.

There is no evidence in this record of any navigation the Drainage Canal, and as we have seen, the Illinois preme Court has held navigation was not one of the rposes for which it was created.

It is true that it obtains its water supply from Lake

Michigan by virtue of a permit from the United States, but it cannot be successfully argued that the United States thereby acquired any control over the canal for navigation purposes, for the Act of the State Legislature under which the channel was created, and in aid of which the permit was granted, expressly declared when, and under what conditions, it should become subject to Federal control. Section 24 is as follows:

> "When such channel shall be completed, and the water turned therein, to the amount of three hundred thousand cubic feet of water per minute, the same is hereby declared a navigable stream, and *whenever the general government shall improve the DesPlaines and Illinois Rivers, for navigation, to connect with this channel*, said general government shall have full control over the same for navigation purposes, but not to interfere with its control for sanitary or drainage purposes."

But even if it be conceded, for the purpose of the argument, that the Sanitary District Canal is navigable water of the United States, yet the mere fact that the DesPlaines connects with it would not bring the latter within the jurisdiction of the United States. It must further appear that boats engaged in interstate commerce can pass from it into the Canal, or from the latter into it.

We have shown that the upper Illinois is not navigable. The same facts show that the DesPlaines is not, and we will add other evidence to that effect when we discuss that river. (*Post*, p. 96.)

It is submitted that under the authorities cited early in the discussion under this point, neither the Drainage Canal, the DesPlaines River, nor the Illinois above the point where it is practically navigable, is a waterway of the United States and subject to its jurisdiction under the Commerce clause of the Constitution.

Point X.

PELLEE IS SEEKING TO USE THE ACT OF MARCH 3, 1899, TO ACCOMPLISH AN INEQUITABLE AND UNJUST END. BEFORE THE ENTERPRISE WAS ENTERED UPON, THE WAR DEPARTMENT ASSURED APPELLANT'S PREDECESSOR THAT THE DESPLAINES RIVER WAS NOT A NAVIGABLE STREAM, AND THAT THE PROPOSED DAM WOULD NOT INTERFERE WITH, BUT WOULD AID IN, FUTURE IMPROVEMENTS OF THE RIVER, AND THE INVESTMENT OF APPELLANT WAS MADE UPON THAT ASSURANCE.

a.

EN HAD THE DESPLAINES BEEN NAVIGABLE, THE PURPOSE OF THE ACT WOULD HAVE BEEN EFFECTED BY THE PROCEEDINGS HAD BEFORE THE WAR DEPARTMENT.

In the light of the record in this case, the claim presented by the United States shrivels to the driest usk of technicality. Before any money was invested this enterprise, everything possible to be done to make certain that the dam, if constructed, would not obruct any future plans of the United States with refence to the river, was done. The War Department in bstance, gave its approval, and the only reason why did not formally approve the plans, was because it did ot consider the DesPlaines River a navigable water of ie United States. The Court of Appeals, in its opinion, akes no reference to this phase of the case, although was earnestly urged in the printed and oral arguments.

The facts we are about to narrate show that one Department of the United States Government is, in this roceeding, attempting to apply the Act of March 3, 899, not to effect the purpose for which it was passed, ut rather to accomplish an unjust and inequitable end, o the great injury of persons who, in good faith, acted pon a decision of another Department of that Govern-

ment. To make this clear will require a somewhat detailed statement of the facts leading up to the present situation.

The United States in this action, is endeavoring to destroy a large investment of appellant upon the claim that appellant was constructing a dam in a navigable water of the United States before the plans for the same had been submitted to and approved by, the Chief Engineer and the Secretary of War. Such submission and approval were all that was required, had the DesPlaines River been navigable. The consent of Congress is not necessary under the Act when the navigable portions of the river in question are wholly within the limits of a single state. In such case the authority of the Legislature of that state, and the approval of the plans by the Secretary of War are alone required.

The State of Illinois through its Supreme Court, has held in *State* v. *Economy Light & Power Company, supra,* that the stream was not navigable and that appellant, in building this dam, was doing what it had a lawful right to do. In *Canal Trustees* v. *Haven,* 5 Gil., 548, it was stipulated that the evidence showed that the DesPlaines was not a navigable stream. Manifestly then appellants' predecessor could not have been required, and in fact had no standing to ask, authority from the Legislature of Illinois.

b.

THE ONE, AND ONLY THING, THEREFORE, ON WHICH THIS ACTION OF THE UNITED STATES CAN BE RESTED, IS THE ABSENCE OF A FORMAL APPROVAL BY THE CHIEF OF ENGINEERS AND THE SECRETARY OF WAR.

Two facts are indisputable: One that the plans were not submitted for formal approval under the Act, be-

use the stream was, and for nearly a century had been, ld by the War Department to be unnavigable; the her, that if the river had, in the opinion of the De- rtment, been navigable, the plans would have been for- ally approved, as they were in fact informally ap- oved.

It is equally clear that Congress in passing the Act was t concerned about forms, but facts; the formal ap- oval was only an incident to the end to be accom- ished—protection of navigation.

In *Wilson, Attorney General,* v. *Hudson County Water* ., 76 N. J. Eq., 543; 76 Atl., 560, 565, the court, in eaking of the Act in question here, said that it was

> "a mere regulation for the benefit of commerce and navigation, and that the license or permission of the Secretary of War is only a finding and declaration of such officer that such proposed structure would not interfere with or be detrimental to navigation."

Substantially the same language was used in *Cobb* v. *ommissioners of Lincoln Park,* 202 Ill., 427.

Secretary of War Taft so construed the Act, in a hear- g concerning the dam in question in this suit.

c.

THE INSTANT CASE THE CHIEF OF ENGINEERS AND SECRE- TARY OF WAR FOUND NOT MERELY THAT THE PROPOSED STRUCTURE WOULD NOT INTERFERE WITH COMMERCE, WHICH WAS ALL THAT WAS REQUIRED UNDER THE ACT OF 1899; THEY FOUND THAT THERE WAS NO COMMERCE TO BE IN- TERFERED WITH, AND THAT THE DESPLAINES RIVER WAS NOT NAVIGABLE.

A decision that a proposed structure would not ob- ruct navigation, could not be put in more positive form an by declaring that the stream in question was not

navigable. In the instant case, however, the War Department went further, for it assured appellant's predecessors that the proposed dam was in harmony with tentative plans of the Government for making the stream navigable. And appellant made its investment, and began the construction of the dam on the faith of that assurance.

The persons interested in the project would have been justified in proceeding with the building of the dam without approaching the War Department, because that Department had made a record extending over nearly a century, that in its judgment the DesPlaines was an unnavigable stream. Elsewhere in this brief (pp. 118, 119, 125, 146) we have referred to the reports of surveys made by its engineers, which sustain this statement. Will it be contended that an owner, contemplating improvement of a stream classed as unnavigable by the War Department, must ask a permit from that Department under the provisions of the Act of March 3, 1899? Or that if he proceeds with his work, relying upon such classification, he is liable to be enjoined because he did not ask the Department to take jurisdiction over a stream which, according to its own repeated findings, was not within its jurisdiction?

But Mr. Munroe and Mr. Logan did not, as they might properly have done—Secretary Taft, as will be seen later, said they might—rely on the fact, always recognized by the War Department, that the stream was not navigable. They submitted their plans for the dam to that Department which alone had jurisdiction in the premises, and which having power to approve plans for obstructions in navigable streams, must, as an incident to the exercise of it, have had power to pass upon the question of navigability. The plans were presented to the Department in March, 1906. The purpose—as stated in a letter of Lt.

Col. Bixby, Engineer in Charge at Chicago, to Brig. Gen. Mackenzie, Chief of Engineers at Washington—was

> "to make evident that the proposed dam construction not only does not conflict with any existing U. S. law, but also will assist rather than injure the possible future navigation of the DesPlaines and Illinois Rivers, should the improvement of such rivers ever be authorized by Congress * * * and * * * to secure from the War Department some expression of opinion, informal or otherwise, so far as it can properly be given, *that will allow them to assure all inquirers that the War Department so understands the situation, and is making no objection to such prompt progress of the work as is necessary to a business enterprise of its magnitude and importance.*" (p. 2873.) (Italics ours.)

In the same letter Col. Bixby said:

> *"The DesPlaines River, so far as now known to this office, has never yet been considered a navigable stream of the United States. It is, therefore, apparently as yet subject to such jurisdiction as applies to all other unnavigable streams, and not subject to the provisions of Sections 9-13, Act of March 3, 1899, or to other similar U. S. legislation."* (p. 2872.) (Italics ours.)

In passing, we suggest that it would have been a most remarkable thing that the officer of the War Department in charge of the district through which the DesPlaines flows, and whose office was within a few miles of it, did not know that it was a navigable water of the United States, if in fact it was such.

Col. Bixby, in the same letter, advised Gen. Mackenzie that Mr. Munroe's proposition ought to be encouraged, and that he should receive from the War Department such expressions of favorable consideration as might be properly allowable under such circumstances. Referring to the report of a Board of United States Engineers of August 26, 1905, upon the feasibility and cost of a navigable waterway from Lockport, Illinois, *via* the Des-

Plaines, Illinois, and Mississippi Rivers, he quoted from it the statement that the plan submitted by that board was

> "not designed to develop water power, but there will probably be no difficulty in modifying it, so as to conform to such development if those who are to benefit thereby will co-operate with the Government. They should pay the cost of the dams, and the damage for flowage, which is no more than they would be compelled to do if the Government made no improvement." (p. 2873.)

Col. Bixby's letter then proceeded as follows:

> "The plans herewith submitted by Mr. Munroe show plainly a proposed co-operation such as that described in the above board report, offered in such manner as not only to pay the cost of this power dam, and to protect the United States against flowage damage, *but also to lessen by one the number of locks and dams necessary for future navigation and to otherwise save both time and money* ($142,385 in first cost, and $4,000 annually thereafter for maintenance and operation) to the United States, in case Congress should finally decide to undertake the improvement covered by the August 26, 1905, board report, *or to otherwise make this river navigable in this neighborhood.*" (pp. 2873-2874.) (Italics ours.)

He suggested that encouragement of the proposition be given with provisos for the contingency that

> "the river shall become a navigable water (*which it appears not to be at present*) and when the United States shall decide to give up the use of the canal and to assume the improvement of the river. Until such time I do not see how the War Department can assume any definite jurisdiction of the DesPlaines River, or make any definite demands upon any water power company already organized for the use of this river." (p. 2874.) (Italics ours.)

These provisos reappeared in the letter next to be referred to.

Under date June 7, 1905, Robert Shaw Oliver, Assistant Secretary of War, wrote to Mr. Munroe stating certain conditions, and concluding:

> "If these conditions are complied with, in the opinion of the Chief of Engineers, U. S. Army, concurred in by this department, the work proposed is in general harmony with the work of improvement recommended by the Board of Engineers appointed under authority of the River and Harbor Act of June 13, 1902 (32 Stat. L., 331, 364), in its report dated August 26, 1905, printed as House Document No. 263, 59th Congress, first session. Inasmuch, however, as Congress has not as yet authorized the improvement of this river, this department does not deem it expedient to take further and definite action in the matter of approving the plans." (pp. 2876-2877.)

The plans, it will be observed, were not submitted for approval, but only to get such assurance as the War Department gave. Not being a navigable stream, the Department had no jurisdiction over it. IT IS QUITE APPARENT, HOWEVER, FROM THIS CORRESPONDENCE THAT HAD IT BEEN NAVIGABLE, FORMAL APPROVAL WOULD HAVE BEEN GIVEN.

Therefore, even if it can be assumed that the river was in fact navigable, although the War Department was ignorant of the fact, the purpose of the Act as defined in the authorities, was effected. There was in the language of the court in *Wilson, Attorney General,* v. *Hudson County Water Co., supra,* "a finding and declaration of such officer that such proposed structure would not interfere with or be detrimental to navigation." As we shall show, having so found, the Secretary of War had no Constitutional power to refuse permission, even had he been so inclined.

But it is clear, not only that it was the judgment of the Department that the dam would not interfere with navigation, but that the Department did in fact, approve

its construction. The letter of the Assistant Secretary said:

> "It is understood that yourself and associates are willing to comply with the following conditions:" (p. 2875.)

And then followed three conditions, having to do with the construction, the protection of the United States from flowage damage, and the conveyance to the United States of a strip of land at least 150 feet wide across the north end of the dam, for a boat lock, if it so desired. How could that have been "understood," unless it was also understood that the United States approved of the building of the dam? So far as the work progressed these conditions were complied with, all the lands to be flowed were acquired by appellant, and while the remainder of the dam was built of concrete, 150 feet at the north end was built of soft earth, so that the Government, if it ever made the river navigable, might have the lock which was provided for. (pp. 2199-2200.)

But the War Department's connection with the matter did not end there. Thereafter, on December 15, 1906, the State of Illinois made an application to the Secretary of War to prevent him from granting a permit for the dam. As the result of it the Secretary of War, Mr. Taft, gave a decision which is an official record, in which, among other things, he said:

> "The truth is that the DesPlaines River, not being a navigable stream, no permit was necessary to put any obstruction in it which the War Department could prevent. But even if it had been a navigable stream, and even if the application had been made, and properly made to this Department to say whether this would interfere with navigation, if the Department concluded that it would not interfere with navigation, it is not within the power of the Department to withhold its expressing such an opinion and granting such a permit, so far as the United

States is concerned, for the purpose of aiding the state in controlling the water power. * * * All the United States does, assuming it to be a navigable stream, is merely to protect the navigation of the stream. * * * Therefore, what General Mackenzie has done out of the kindness of his heart does not commit this Department to any assertion of authority in the matter, and certainly does not carry us to the necessity of retracing our steps and saying that they shall not go on with this, when we had not any power to interfere at all." (pp. 1936-1938.)

At the hearing upon that application of the State of Illinois the following colloquy occurred between Secretary Taft and the then Chief of Engineers, General Mackenzie:

"Secretary Taft: It is not now navigable (referring to the Des Plaines River).

General Mackenzie: It is not now navigable.

* * * * *

Secretary Taft: But you are not seeking to exercise any authority over an existing navigable stream?

General Mackenzie: No, sir.

Secretary Taft: Or to grant a permit so as to protect interests of the United States in the stream?

General Mackenzie: No, sir.

Secretary Taft: *Suppose they were to go ahead without coming here at all. You would not go into court, or could not, by an order of this Department, prevent them from doing anything, could you?*

General Mackenzie: I do not think we could. Of course, under all the conditions, so far as they have gone, possibly we could call the attention of the Department of Justice to the matter, simply to have them consider it as a legal proposition.

Secretary Taft: Where would the Department of Justice get any power?

General Mackenzie: Only from the general law—that in case of violation of any law for the protection of navigable streams.

Secretary Taft: Yes, but the DesPlaines is not a navigable stream, is it?

General Mackenzie: It is not, to-day, sir.

Secretary Taft: And it could not become so ex-

cept by a declaration of Congress to carry work on it.

General Mackenzie: That is it, exactly.

Secretary Taft: Then where do I get any power to deal with it at all?

General Mackenzie: I do not know that there is any, Mr. Secretary." (pp. 3223-3224.)

The gravamen of the case against appellant is that a formal permit was not obtained from the Secretary of War to obstruct a navigable stream. In the above colloquy we have a declaration from that Secretary that appellant could have proceeded without going to the War Department at all, and that neither that Department, nor the Department of Justice, could have interfered because the stream was not navigable.

Relying upon assurances from the War Department appellant purchased the property and began the work. It executed a mortgage securing $3,000,000 of bonds of which $2,000,000 were sold (pp. 2199, 3182, 3185). Contracts were entered into by it for the construction of the dam, and the purchase of material, obligating it heavily, and at the time when construction was stopped by a preliminary injunction in the suit brought by the State of Illinois, nearly $200,000 had actually been paid on account of the work. (p. 3185.)

It was not until more than three years had elapsed that the Government of the United States indicated in any way that it no longer approved the prosecution of the work, which in the beginning it had encouraged, and the first notice of such disapproval was the bringing of the present action.

This Court is, therefore, dealing with a case in which a court of equity has exercised its extraordinary power to enjoin the erection of a structure in a stream on which there was no commerce to be obstructed, on the ground that no permit had been obtained from a Secretary of

ar who had asserted that no permit could be obtained cause the stream was not navigable and therefore was t within the control of Congress or the Federal Courts. We submit that upon this record, if instead of the vernment of the United States, a private individual corporation were seeking the relief which the trial urt granted and which the Court of Appeals affirmed, court of equity, upon the simple narration of this hisry, would say that the complainant's claim had no red of title to respect in such a court, and that it merd severe condemnation.

The Federal courts do not look with any more favor such an inequitable claim when put forward by the ited States than when it is made by an individual.

In *Chicago, Burlington & Quincy Railway* v. *Drainage mmissioners,* 200 U. S., 561, p. 593, this Court said:

> "If the means employed have no real, substantial relation to public objects which government may legally accomplish; if they are arbitrary and unreasonable, beyond the necessities of the case, the judiciary will disregard mere forms and interfere for the protection of rights injuriously affected by such illegal action. The authority of the courts to interfere in such cases is beyond all doubt."

In *Monongahela Bridge Company* v. *United States,* 6 U. S., 177, 195, this Court said:

> "Learned counsel for the defendant suggests some extreme cases, showing how reckless and arbitrary might be the action of executive officers proceeding under an Act of Congress, the enforcement of which affects the enjoyment or value of private property. It will be time enough to deal with such cases as and when they arise. Suffice it to say, that the courts have rarely, if ever, felt themselves so restrained by technical rules that they could not find some remedy, consistent with the law, for acts, whether done by government or by individual persons, that violated natural justice or were hostile to the funda-

mental principles devised for the protection of the essential rights of property."

We submit that the Government's attempt to avail itself of the Act of March 3, 1899, in this case, is wholly arbitrary and indefensible in law or morals.

d.

THIS COURT HAS INTIMATED THAT THE ACTS OF THE WAR DEPARTMENT, ABOVE NARRATED, SHOULD PREVENT INTERFERENCE WITH THE CONSTRUCTION OF THE DAM.

The judgment of the Supreme Court of Illinois in the State case was taken by writ of error to this Court. The writ was dismissed for lack of jurisdiction, but we think the opinion (*State of Illinois* v. *Economy Light etc. Co.*, 234 U. S., 497), shows that this Court had well defined views on the merits of the State case, which are equally pertinent to the merits of the present case. We refer in more detail to it elsewhere in this brief. Here we call this Court's attention to what it said as to the submission of the plans for the proposed structure and the action of the War Department with reference to the same.

The last two paragraphs of its opinion went directly to the question of the Federal right to enjoin the building of the dam irrespective of whether the State or the United States was the complainant. The court said:

> "It is said, however, that by the Acts of 1899, 1900 and 1902, Congress has taken jurisdiction of the DesPlaines River. If so, the State is not the instrument through which the jurisdiction can be exercised." (p. 524.)

If this Court meant to go no farther than to place its judgment upon the fact that if a Federal right existed, the State was not the proper party to enforce it, nothing more needed to be said. That was fully expressed. But it proceeded to show that no Federal right in fact existed.

t undertook to state what the situation would be, even the State could enforce an existing Federal right. The ext paragraph, referring to certain Acts of Congress or surveys of the Illinois and DesPlaines Rivers reads s follows:

> "But the cited acts are not appropriations for improvements undertaken but for improvements which may be undertaken; not a jurisdiction exercised but a jurisdiction to be exercised. And, as we have seen, it is alleged in the answer, and the allegation is sustained by the evidence, that the plans of defendant in error's structure were submitted to the War Department and it was declared by that Department, 'The work proposed is in general harmony with the work of improvement recommended by the Board of Engineers appointed under the authority of the Rivers and Harbors Act of June 13, 1902. (32 Stat., 331, 334, C. 1079.)' But the Department, inasmuch as Congress had not authorized the improvement of the river, did 'not deem it expedient to take further and definite action in the matter of approving the plans.' It is manifest, *therefore*, that the state has no right under Federal laws which it may assert for itself or '*on behalf of the citizens of all of the United States,*' and the motion to dismiss must be granted." (p. 524; italics ours.)

So that even if the State were the instrument through hich the jurisdiction could be exercised, yet for the eason stated in the last paragraph, there was no Federal ght to be exercised.

It is to be noted that the Court says "It is manifest *erefore.*" The word "therefore" relates back to the bmission of the plans and the declaration of the War epartment with regard to them. We submit that the eaning of this paragraph is that neither the State nor e general Government in the face of this record, is entled in a court of equity, to restrain that which the Govnment itself not only approved but encouraged.

e.

AS TO THE CLAIM THAT THE SUBMISSION OF THE PLANS TO THE WAR DEPARTMENT WAS A TRAP.

It was contended in the Court of Appeals, and may again be contended here, that Munroe submitted the plans to the War Department in order to trap the Government by securing by indirection, some committing statement by the engineer. It is unthinkable that if Munroe, and his associates, believed that the river was navigable they would have invested a huge sum of money upon a "committing statement" from a Government engineer, knowing that the fact was contrary to the statement, and that they might be ousted from the river at any time. What they would naturally have done would have been to ask for a permit to build the dam, and they could have asked it with almost absolute assurance that it would be granted, and they would then have had a clear legal title to maintain their dam, and a solid basis for the $2,000,000 of bonds which they floated, and for their further investment.

We say that it was practically certain that such a permit would have been granted because, under the conditions existing, including the fact that there was not, and had not been from earliest settlement of the country any navigation on the river, and that there were bridges on it in numerous places which made navigation impossible, there was no reason, within the meaning and spirit of the law, why the permit should not have been granted. Secretary of War Taft, in his opinion, as has been seen, definitely so stated.

If, therefore, a permit had been asked for, it could not have been refused. To have attempted to obtain a doubt-

"committing statement," when a permit was assured
sked for, would have been simply stupid.

n the Court of Appeals counsel for appellee claimed
t the Secretary of War was misled as to the
igability of the river by former Congressman Snapp,
o, they say, was in the employ of the Economy Light
Power Company.

He was not. He stated himself, at the hearing, that
was there representing the people of Joliet, in which
y he lived. He said to the Secretary of War that his
erest was to see to it that the development of power
the plans of Munroe and his associates, would not in-
fere in any way with the development of the water-
y, and that he compelled them by local pressure to
mit the matter to General Mackenzie, not for the pur-
se of asking for permission to do the work, but for the
rpose of satisfying himself, and his people, that the
rk contemplated would not, in the event that Congress
thorized the waterway, interfere with it in the least,
make it more expensive to the Government. (pp. 3222,
23.) As has been shown, the work, in the opinion of
e War Department would not only not so interfere,
t in the event of the improvement of the river for
vigation, it would have saved the Government a large
n of money. It was the Chief of Engineers himself
o told the Secretary of War that the river was not
vigable.

Point XI.

THE DESPLAINES RIVER IS NOT A NAVIGABLE STREAM.

a.

THE SUREST TEST OF WHETHER A STREAM, TRAVERSING A SETTLED COUNTRY, IS NAVIGABLE, IS WHETHER IT HAS BEEN USED FOR PURPOSES OF USEFUL COMMERCE. ACCORDING TO THIS TEST THE DESPLAINES RIVER IS NOT NAVIGABLE.

Elsewhere we refer to the evidence of non-user. It is sufficient here to repeat that the trial judge, in his opinion, said there was "no evidence of actual navigation within the memory of living man," and the Court of Appeals concurred in that finding, and that the Supreme Court of Illinois declared that there was not in the entire record a well authenticated instance in which a boat engaged in commerce, navigated the waters of the Des-Plaines River. The record in this case is the same in that particular as was that in the State case. In the days of early settlement before there were railroads or good highways, every stream susceptible of use was used. But no settler ever went to his destination on the Des-Plaines or upper Illinois, by water, no trader carried his merchandise, and no farmer his produce over them. The roads, or the soggy prairies, were used as far as La-Salle, and thence the Illinois River.

Former Governor Van Sant of Minnesota, who was a river boatman from 1857, and whose testimony on behalf of the State of Illinois in its case against appellant, was introduced in this case by the Government, testified on cross examination that it was a fact that in early days

"the effort was to build boats adapted to the small streams, so as to make them available for commerce, and *whenever there was a river that could be used, for commerce in some way or other, they built a boat to navigate it.* In those early days they resorted to the rivers as a matter of course, if the river could be used, and they built some kind of a boat, if one was possible, to navigate every stream where commerce can be carried on." (Abst., 2381.) (Italics ours.)

While in definitions of navigability it has been said that rivers

"are navigable in fact when they are used or are susceptible of being used, in their ordinary condition, as highways for commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water," *Packer* v. *Bird*, 137 U. S., 661,"

yet it is said in Gould on Waters (Sec. 43):

"The extent to which a river * * * is used for navigation is the strongest evidence of its navigable capacity."

We think no case can be found where a river has been held navigable which, after settlement, has not been actually used for "useful commerce." The courts and text-book writers have many times declared such actual user to be the real test.

In Farnham on Waters (p. 121) it is said:

"The capacity as shown by the use to which it is put is the true criterion by which to judge the question of navigability."

And at p. 125 the author says:

"In a country which has long been settled the fact that a stream has never been used for navigation is strong evidence that in the opinion of the people who might use it, it is not of sufficient size to make such use valuable, so that the fact of use or no use may be of great weight in determining whether or not the stream is navigable."

In *State* v. *Gilmanton*, 14 N. H., 467, 480, the court said:

> "But there is another important consideration. It does not appear that the river was ever used by the public for the purpose of a highway. This is the surest test, and is the one relied on in the cases above referred to."

Burroughs v. *Whitwam*, 59 Mich., 226; 26 N. W., 491, the court, at p. 492, said of the stream under consideration in that case:

> "It has never been used at all for public purposes, except fishing, and there is no evidence that it can be used hereafter for any other purpose save pleasure. * * * Indeed, it was not seriously contended in the argument that it had ever been used for any public purpose as a highway; but stress was laid upon some testimony in the case of ex-Governor Begole and others, to the effect that, compared with other streams used for the purpose of floating logs, this seemed a first class stream, in the opinion of the witness; but facts are better than theories and disprove them. *In 50 years*, during which Genesee County has been converted from a wilderness into a garden, no one has ever yet thought of running a log or stick of timber down this creek to the City of Flint. *This is pretty nearly conclusive evidence that that stream has never been susceptible of public use* for *floatage, either valuable or otherwise.*" (Italics ours.)

Just so in the case at bar, pages were filled with expert and theoretical evidence in the endeavor to show that the DesPlaines is a navigable stream. But in *State* v. *Economy Light & Power Company*, 241 Ill., 290, 336, in language quoted by this Court (234 U. S., 520), it was said:

> "Whatever may be thought of the preponderance of it one way or the other, it can have but little weight as against the uncontroverted fact that the river has never been used as a public highway for commerce."

In *Webster* v. *Harris*, 59 L. R. A., 324, 330 (Tenn.), the court said:

"In determining the natural capacity of a body of water for navigable purposes, whether navigable in law or in the ordinary sense, the extent to which it is used for purposes of navigation should be looked to, *and this affords the strongest evidence as to its navigability or non-navigability in either sense.*" (Italics ours.)

b.

THE ILLINOIS AND MICHIGAN CANAL WAS BUILT PARALLELING THAT PORTION OF THE RIVER IN WHICH THE PROPOSED DAM WAS TO BE ERECTED, BECAUSE THE DESPLAINES WAS NOT NAVIGABLE.

Had the DesPlaines River been a navigable stream, the Illinois and Michigan Canal would not have been built. The expense was enormous for the times, justified only by the exigencies of the situation. No commerce passed between the navigable waters of the Illinois and Lake Michigan, except by wagon and stage. Governor Duncan in a message to the Illinois Assembly spoke of the proposed canal to connect "by a short and direct route, two great navigable waters," referring to Lake Michigan and the Illinois River. (p. 2821.)

In a similar message, dated December 2, 1834, Acting Governor Ewing spoke of the contemplated connection of Lake Michigan "with the navigable waters of the Illinois." (p. 2820.)

By the Act of Congress of March 30, 1822, the state was authorized to survey, and mark, through the public lands of the United States, the route of a canal connecting the Illinois River with the southern bend of Lake Michigan.

That was the only legislation of Congress in force when the Act of the Legislature of Illinois of February 14, 1823, was passed, providing for devising measures "to

effect the communication, by canal and locks, between the navigable waters of the Illinois River and Lake Michigan." In passing, we call attention to the fact that the Legislature, by this, its earliest, Act on the subject, recognized that there was not communication between Lake Michigan and the navigable waters of the Illinois, and that such communication if effected at all must be by canal and locks. Section 3 of the Act directed the commissioners thereby appointed to cause a survey to be made for

> "determining the most eligible and proper route for the same (the canal) and to cause all necessary surveys and levels to be taken. * * *"

The commissioners employed Justus Post and R. Paul as the engineers to make such survey. They began their examination in the autumn of 1823.

Post and Paul fixed the termini of the canal, one at the head of the Chicago River and the other a few miles below the rapids on the Illinois River near its confluence with the Little Vermilion, omitting all of the DesPlaines below Lockport, and the reason why they did so is indicated in the report of the commissioners as follows:

> "From the mouth of the Little Vermillion, above referred to, neither the Illinois nor the DesPlaines is navigable in low stages of water as they are frequently interrupted by rapids; but no serious obstacles present themselves in effecting a canal navigation from the head of the navigable waters of the Illinois River to Lake Michigan." (p. 1136.)

Up to time of the building of the canal, no boat had been devised which did, or could, use the DesPlaines River for the purposes of commercial navigation, as that term has been defined in the decisions of this Court.

The record shows that many persons survived at the time of the hearing of the State case, in 1908, who were living in 1848—the year when the canal was opened for

navigation—and old enough at that time to have known of, and to have had fixed in their memories, the existence of navigation had there been any. Many witnesses were called who knew the river before the opening of the canal; of these several were above the age of twelve years when the canal was opened, and one was then thirty-three years of age. No one of these witnesses had ever seen, known, or heard of merchandise or passengers having been taken up, or down, the DesPlaines River, or had ever seen anything larger than a hunter's boat upon its waters. In direct conflict with this uncontradicted testimony, the Court of Appeals in its opinion, said that

> "After the year 1848, when the Illinois and Michigan Canal was constructed, commerce that had formerly been carried on the DesPlaines River was carried on the canal."

To show that this statement is not only unfounded, but is in direct conflict with all the evidence on the subject, we refer to that evidence in another portion of this argument. (p. 131.)

Each of the witnesses who knew the river before 1848 testified that they, and their neighbors went by road to, and from, Chicago, and that their farm products were taken by ox teams or horses, and that they met wagons from points as far as Bloomington going to and from Chicago. One of these witnesses testified that he had occasion to go to St. Louis to buy goods for his store, that he brought them to Ottawa by boat and from Ottawa to Lockport by wagon. (pp. 2506-2507.) There was a regular stage line running from Chicago to Peru, through Joliet and Lockport, as early as 1836, and a through route for the carriage of merchandise was also then advertised. (pp. 2524, 3126.)

Upon the fact alone, established by these witnesses, that all the produce of the DesPlaines Valley, and of the

Illinois above Ottawa, was carried on over wagon roa
in a primitive time, when every stream that was capa
of bearing up boats adapted to commercial purposes, w
naturally resorted to, we would be willing to rest our co
tention that the DesPlaines was not, in its natural con
tion, navigable. That the State took upon itself the bu
den and expense of the building of a canal paralleling
and did so, as it stated in its memorial to Congress,
order to "form an important addition to the great co
necting links in the chain of internal navigation" wou
seem to leave no room for doubt in the minds of reaso
ing men that such a link did not exist prior to its co
struction.

c.

THE NAVIGABILITY OF THE DESPLAINES IS NOT TO BE DET
MINED BY ITS CAPACITY AS CHANGED BY THE ADDITION
WATERS THROUGH THE SANITARY DISTRICT CANAL.

As Point I, *supra*, we have stated the rule that the te
of navigability is whether in its natural condition
affords a channel for useful commerce. One of t
most recent enunciations of this doctrine is found in t
important case of *United States* v. *Cress*, 243 U. S., 31
where the court said:

> "It follows from what we have said that the ser
> tude of privately owned lands forming the banks a
> bed of a stream, to the interests of navigation, is
> natural servitude, confined to such streams as in the
> ordinary and natural condition are navigable in fa
> and confined to the natural condition of the stream

In *The Montello*, 20 Wall., 430, 443, the court said:

> "The vital and essential point is whether the na
> ural navigation of the river is such that it affords
> channel for useful commerce."

It is not the fact that every stream which, in the ear

day when there was no other means of transportation, was capable of being used at certain seasons of the year, by craft which could be carried over numerous portages is a navigable water of the United States. Such a stream was the DesPlaines River.

In the *Montello* case, 20 Wall., 430, 442, the court said:

> "It is not, however, as Chief Justice Shaw said, 'every small creek in which a fishing skiff or gunning canoe can be made to float at high water, which is deemed navigable, but in order to give it the character of a navigable stream, it must be generally and commonly useful to some purpose of trade or agriculture.'"

And in *Donnelly* v. *United States*, 228 U. S., 708, 709, the Supreme Court held that evidence which

> "showed an apparently irregular traffic, in times of high water only, employing Indian canoes, 'dugouts,' and at certain times small steamboats and gasoline launches,"

did not establish navigability of the stream there in question.

So, in *Hubbard* v. *Bell*, 54 Ill., 110, the court held that navigable waters must be capable of practical general uses.

In *Schulte* v. *Warren*, 218 Ill., 108, 119, it was held that

> "a stream is navigable in fact only where it affords a channel for useful commerce and of practical utility to the public as such. The fact that there is water enough in places for rowboats or small launches answering practically the same purpose, * * * does not render the waters navigable."

In *Mayor, etc.*, v. *Harlow* (Md.), 98 Atl., 852-857, the court said:

> "A theoretical or potential navigability or one that is temporary or precarious, and unprofitable, is not sufficient."

It is alleged in the bill of complaint that because since

the opening of the Sanitary District Channel, a large amount of water has been diverted from Lake Michigan to the DesPlaines River, the Sanitary District Canal is a part of the navigable waters of the United States, and that the DesPlaines itself below the point at which it connects with that canal "has been continuously" part of the navigable waters of the United States. Substantially all of the opinion evidence introduced by the United States concerned the river in its condition as altered by the inflow of water through this Canal.

The trial court in its opinion said:

> "Also claim of right to injunction because river is now navigable within meaning of *Montello* doctrine, untenable, because present volume of water due to artificial cause."

This language must be construed to refer to a *claim* that the river is now navigable and not as expressing an opinion that it *is* so. As we show elsewhere there is not a particle of evidence that the river is now navigable for any purpose.

But even if the river as changed by artificial means had in fact become navigable, the rights of owners would not be affected thereby.

It is unnecessary for us here to present all the considerations which establish the fact that the navigability of the river cannot be determined by its condition as created by artificial means. That question was fully considered by the Supreme Court of Illinois, in *Illinois* v. *Economy Light & Power Co., supra.* That Court said:

> "Appellant strongly contends that the rights of appellee as riparian owner are to be determined with reference to the conditions that exist since the deepening of the Illinois and Michigan Canal and the construction of the Sanitary District Channel, by means of which the volume of water in the DesPlaines River has been greatly increased. It is argued that the

navigability of the river is to be determined with reference to the changed condition and not as the stream existed in a state of nature. Appellant's position, as we understand it, is this: Assuming the stream to be unnavigable in its natural condition, the State may by artificial means so change the stream as to make it navigable and thus destroy the vested property rights of riparian owners upon the said stream. The position is untenable. The property rights of riparian owners in the bed of an unnavigable stream are as sacred as any other property right, and such owners cannot be deprived of those rights without compensation, by artificial additions to the waters of the stream whereby it is rendered navigable. To hold that the State can by artificial means make a stream navigable which in a state of nature was not navigable, and thereby deprive riparian owners of their property rights in the bed of the stream, is simply to hold that private property may be taken or damaged for public use without compensation." (p. 324.)

This Court in its opinion on the writ of error in that case analyzed at considerable length, this finding of the Supreme Court of the State, and it is evident that its views were in harmony with those of the State court. (234 U. S., 520-523.) Among other things this Court said:

"The Court seemed to consider that it had decided all the contentions of the state when it had decided the question of the navigability of the river both in its natural condition and its condition after the addition of the waters of the Sanitary District. The fact was and is pivotal." (p. 253.)

In *Philadelphia* v. *Stimson*, 223 U. S., 605, which related to the powers of the Government to exercise control over navigable waters under the Act of 1899, the court held that the owners' rights are not affected "when the change in the stream is sudden, or violent, and visible," but only when it is "gradual and imperceptible."

The same doctrine is held in *Schulte* v. *Warren,* 218 Ill., 108.

In the instant case the increase in the volume of the DesPlaines River was "sudden, violent and visible." It was caused by the raising of a gate of the Bear Trap Dam at the end of the Drainage Canal at Lockport, and by the shutting of that gate the stream can be at any time reduced to its original volume. Indeed, the volume is continually regulated by the operation of the gate.

In *United States* v. *Cress, supra,* this Court said:

> "In Kentucky, and in other states that have rejected the common law test of tidal flow and adopted the test of navigability in fact, while recognizing private ownership of the beds of navigable streams, numerous cases have arisen where it has been necessary to draw the line between public and private right in waters alleged to be navigable; and by an unbroken current of authorities it has become well established that the test of navigability in fact is to be applied to the stream in its natural condition, not as artificially raised by dams or similar structures; that the public right is to be measured by the capacity of the stream for valuable public use in its natural condition; that riparian owners have a right to the enjoyment of the natural flow without burden or hindrance imposed by artificial means, and no public easement beyond the natural one can arise without grant or dedication save by condemnation with appropriate compensation for the private right." (p. 321.)

In *Thunder Bay River Boom Company* v. *Speechly,* 31 Mich., 336, the court, by Cooley, J., combated vigorously the idea that private rights could be destroyed by thus altering the condition of a stream, saying:

> "The doctrine that this may be done without compensation to parties injured is at war with all our ideas of property and of constitutional rights. * * * As was remarked in *Morgan* v. *King,* 35 N. Y., 460, the question of public right in a case like this is to

be decided without reference to the effect which artificial improvements have had in the navigable capacity of the river; in other words, the public right is measured by the capacity of the stream for valuable public use in its natural condition; and any attempt to create capacity at other times at the expense of private interests can be justified only on an assessment and payment of compensation."

In *Druley* v. *Adam*, 102 Ill., 177, where the right of a riparian owner to the use of the water added to the Des Plaines by the Illinois & Michigan Canal was in question, the same doctrine was applied.

Other leading cases which hold that a State cannot by artificial means make a stream navigable which in a state of nature was not so, and thereby deprive riparian owners of their property rights in the bed of the stream, are

Tourtelotte v. *Phelps*, 4 Gray, 370.

Lovingston v. *St. Clair County*, 64 Ill., 56.

City of Chicago v. *Laflin*, 49 Ill., 172.

In the latter case the Supreme Court of Illinois said:

"It would be monstrous that the city should, at pleasure, make changes in this stream so as to render buildings on the wharves an obstruction and then require their removal without compensation. Such power would be more vast and absolute than can be exercised by the State itself."

d.

THE ATTEMPTED USE OF THE RIVER IN PRE-SETTLEMENT DAYS BY EXPLORERS AND TRADERS PROVED THAT IT WAS UNNAVIGABLE. THE RECORD IN THE STATE CASE WAS SUBSTANTIALLY THE SAME AS IN THE INSTANT CASE. SUCH ADDITIONAL USE AS WAS SHOWN IN THIS CASE TENDED TO SUPPORT THE CONCLUSION THAT THE RIVER WAS NON-NAVIGABLE IN THE EARLIEST HISTORICAL TIMES.

In *Wear* v. *Kansas*, 245 U. S., 154, this Court, referring to the decision of the State court that the Kansas river was navigable, said:

> "The fact is of a kind that should be established once for all, not perpetually retried."

In the instant case, the trial judge declined to give any weight whatever to the finding of the Illinois Supreme Court, that the DesPlaines was not a navigable stream. In his opinion he said:

> "Judgment of State Supreme Court against navigability in Illinois vs. present defendant, obviously rendered on record vitally differing in facts from the record here, as to actual use of stream for fur trade and travel by customary mode at time of use. Therefore, that judgment not persuasive, it appearing from court's opinion to have been based on the absence of evidence from that record as to such use, which evidence is present here."

It cannot be understood how the trial judge came to this conclusion unless it be that because more than three and a half years had elapsed from the time he took the case under advisement and the time when he decided it, his memory was not clear as to the state of the record.

The fact is that what the trial court referred to as additional instances of "actual use," were almost all records of efforts to use the river which resulted in failure.

The Court of Appeals said:

> "The difference in the records in the two cases would not, perhaps, warrant a different conclusion, although the evidence here is somewhat stronger in favor of navigability than in that case." (p. 804.)

The reason why the Court of Appeals came to a different conclusion from that arrived at by the Supreme Court of Illinois is very evident. The latter court rejected the "floatage" definition of navigable waterways of the United States and the Court of Appeals accepted it. The Court of Appeals frankly admitted that it took "a different view as to the force and effect of the historical accounts of the early use of the river."

Some eighty witnesses were examined in the State case whose testimony was read, and became part of the record, in the instant case. But eighteen witnesses testified in this case who did not testify in the former, nearly all of whom were engineers, experts or historians who were put on the stand to draw conclusions from the historical evidence, which it was the business of the court to draw. We will deal with the testimony of such witnesses briefly later. Our present purpose is to show that the experience of explorers and traders in pre-settlement times proved that the river was not navigable even for their frail craft, and that the trial judge was wholly mistaken when he said that the record in the State case differed vitally from the record in the instant case *"as to actual use of the stream for fur trade and travel,"* and the Court of Appeals was also in error in saying that the evidence in the instant case was somewhat stronger.

The abstract of the record in the State case contained over three thousand printed pages. A reference to the opinion (241 Ill., 290), will convince the Court, we think, that the Supreme Court of Illinois gave very careful consideration to that record and to a study of the early use of the river.

OUR TASK IN THIS PARTICULAR WILL BE TO REFER TO ALL SUCH EVIDENCE OF ACTUAL USE AS APPEARS IN THE RECORD IN THE INSTANT CASE WHICH WAS NOT CONTAINED IN THE RECORD IN THE STATE'S CASE. It very strongly corroborates LaSalle's characterization of the river as written by him in 1682:

> "in the summer there is no water at all in the Des Plaines and Illinois as far down as Fort St. Louis (Starved Rock), where the navigation of the Illinois River begins at this season. (p. 295.) * * * Navigation would be only for a short time, at most for fifteen or twenty days each year, after which there is no longer any water. * * * the waters are always drained in the month of March, so that it would be easier to transport the goods from Ft. St. Louis to the Lake by land by making use of horses, which it is easy to have, there being numbers among the savages." (p. 35.)

These additional instances are as follows:

Tonti, LaSalle's lieutenant, in November or December, 1680, undertook a trip from Starved Rock to Lake Michigan in a canoe. (pp. 30, 31.) Somewhere on the trip the canoe was abandoned, just where does not appear. Parkman, the historian, puts this on the DesPlaines River. How much of the trip was made overland is not shown, but the accounts of Joutel (pp. 43, 45, 214, 1533, 1740-44, 1922, 1923), a companion of LaSalle, Charlevoix (pp. 58, 59, 1187, 1189, 1407, 1408), Hubbard (pp. 119-123, 219-222, 303, 1198, 1199, 1509-1515), Schoolcraft (pp. 233-237, 1191-1193, 1462, 1568), Graham & Phillips (p. 1403), LaSalle (p. 295), St. Cosme (pp. 49, 50, 1567, 1360), and others, indicate that ordinarily it was necessary to carry the canoe a large portion, if not all, the way from the mouth of the DesPlaines to Chicago.

In 1682 Tonti came in a canoe to Starved Rock and was compelled to abandon it, and walked on land to Lake Michigan, forty leagues from there. (Abst., 1737-1738.)

In 1687 Joutel and his party made a land passage of 40 leagues from the Illinois River to Chicago *en route* to Mackinac, because there was no water in the river. Arrived at Chicago, they embarked in canoes of three men who had arrived from Mackinac on their way to Starved Rock and who had left their canoes and goods at Chicago, because there was no water in the river. Joutel's party failed in their attempted journey, turned back, left the canoes at Chicago and returned to Starved Rock on foot. (Abst., 1741-1743.)

In March, 1688, Joutel again came from the same point to Chicago. This was the time of spring flood and the canoes were pulled with great difficulty, the men walking in the water much of the way, and dragging their canoe. (Abst., 43-45, 1533-1534.)

Charlevoix, in 1721, planned to use the Chicago- DesPlaines route, but "being informed that at this season of the year there is not water sufficient for a canoe" he took the route by the St. Joseph and Kankakee involving a journey greater by some 200 miles than that from Chicago direct to the Illinois. (Abst., 58.)

Kennedy in 1773 tried to ascend to the head waters of the Illinois in a boat of three feet draft. He and his party were compelled to leave it some 60 miles below the mouth of the DesPlaines because the water was so low that they could get no farther with their boat, and they proceeded by land. (Abst., 241-242, 1172.)

Hennepin, who accompanied LaSalle in 1679 and 1680, wrote that the "desPlaines River is not navigable for 40 leagues except for canoes which have hardly enough water in the summer time." (Abst., 38-39.)

LaHontan, in April, 1689, reported that having arrived at the village of the Illini, to lessen the drudgery of a great land carriage of 12 leagues, he engaged 400 men

to transport his baggage from the Illinois River to Lake Michigan, which was done in four days. (Abst., 218-219.)

One Tanner, in 1819, journeyed from St. Louis to Chicago. Part of the way he used a Mackinac boat; but his narrative says:

> "The current of the Mississippi below Missouri soon convinced me that my large and heavy boat was not well adapted to the nature of my undertaking, and at portage DeSioux I left it. From this place I proceeded in a small canoe with two men, to the head of the Illinois river, thence to Chicago." (Abst., 3253-3254.)

Tanner made a return trip in 1820, and his necessary portage was 120 miles from Chicago to the Illinois River. Arrived at Chicago he found a Frenchman who had just carried boats by wagon across the portage. Tanner says:

> "Though his horses were now much worn out from the long journey from which he had returned, he agreed to take me and my canoe sixty miles, and if his horses could hold out, the whole one hundred and twenty, which was, at the present stage of the water, the length of the portage." (Abst., 3255.)

At the end of sixty miles the horses gave out and Tanner attempted to put the canoe in the water, not to ride in it, but to drag it, but after three miles he found this method so slow and laborious that he engaged an Indian to take his baggage and his children on horses sixty miles farther. (Abst., 3255-3256.)

In 1822 he returned up the Illinois, but at about Peoria he left his canoe and took a horse to Chicago. (Abst., 3256a.)

Childs made a trip from St. Louis to Lake Michigan in 1821 in a canoe paddled by two men. It was in the spring of the year, at a time of great rains, when the streams overflowed their banks and the country was flooded. The flood was so extensive that he did not know when he had reached the portage, so he left the Des-

Plaines and traveled in his canoe across country until he found the current of the Chicago River. (Abst., 1166, 697.)

Schoolcraft in 1821 came up the Illinois in a canoe as far as Starved Rock. The difficulties of navigation were such that his party relinquished the design of proceeding any farther by water, but made their journey to Chicago on horses. He referred in his narrative of his trip, to the "error of those who have supposed that a canal of only eight or ten miles would be necessary to provide navigation between Lake Michigan and the Illinois" (p. 236), stating that in their journey to Chicago they had seen the channel in the river at a sufficient number of places to determine that it has several long and formidable rapids which completely intercept navigation at this sultry season; "a remark that has been confirmed by meeting several traders on the plains who had transported their goods and boats in carts from Chicago Creek, and who informed us they thought it practicable to enter the Illinois at Mt. Joliet. This would lengthen the portage to about 30 miles, but it has been perceived that we experienced difficulties far below this last mentioned point." (Abst., 235.)

Tousey in 1823 went through that country on horseback, and he wrote:

> "For many years I have felt a most anxious desire to see the country between Chicago and the Illinois (river), where it has generally been, ignorantly, supposed that only a small sum would be wanting to open a communication between them. By traveling on horseback through the country and down the Illinois, I have conceived a different and more exalted opinion of this communication, and of the country than I had before, while I am convinced that it will be attended with a much greater expense to open it than I had supposed." (Abst., 1190.)

In 1823 a Lieut. Hobson told William H. Keating th
he had traveled the DesPlaines River with ease in a b
loaded with lead and flour. (Abst., 135-136)

In 1825 or 1827—the date is uncertain—one Fon
came up from the Illinois in a canoe, and he merely stat
that

> "We paddled along until we came to the D
> Plaines river, from which we passed into a lar
> slough or lake that must have led us into a bran
> of the Chicago river, for we followed a stream th
> brought up opposite Ft. Dearborn." (Abst., 1
> 137.)

Furman in the spring of 1829—the period of freshets
paddled a canoe down the river. (Abst., 148-149.)

In his description of his trip he says that "during t
spring floods a considerable lake is formed."

There is a record that one Galloway journeyed wi
his family and possessions in a dugout made from a bla
walnut tree from Chicago to a home established by hi
somewhere on the Illinois. The story as told in 1880 b
his daughter says that he took advantage of the usu
spring freshets. (Abst., 1702.)

WITH THE EXCEPTION OF THE USE, OR ATTEMPTED USE,
THE RIVER BY THE AMERICAN FUR TRADE COMPANY, TH
ABOVE CONSTITUTE ALL THE FACTS "AS TO ACTUAL USE
STREAM FOR FUR TRADE AND TRAVEL BY CUSTOMARY MODE
TIME OF USE" WHICH WERE NOT IN EVIDENCE IN THE STA
CASE AND REVIEWED BY THE SUPREME COURT OF THE STAT
IT WILL BE NOTED THAT IN NONE OF THESE INSTANCES, E
CEPT THE STATEMENT OF HOBSON, DOES IT APPEAR THAT T
PERSONS WERE CARRYING MERCHANDISE OF ANY SORT, A
THAT THEY WERE TRIPS IN CANOES, EXCEPT THAT ONE WAS
A DUGOUT.

It will be further noticed that there is but one instanc
as disclosed by this additional evidence, where any u
whatever was made of the river before the passage

the Ordinance and the early Acts of Congress. That was in 1688, when Joutel's men dragged their canoe through the river at time of flood. In this one narrative is found the only basis for the trial judge's conclusion that the decision of the Supreme Court of Illinois was not even persuasive, because "obviously rendered on a record differing in facts from record here as to actual use of stream for trade and travel by customary mode at time of use."

In the above discussion of the actual attempts to use the river shown in the record, we have deferred the accounts left by Gurdon S. Hubbard. Hubbard was connected with the American Fur Company, and that company endeavored to make practical use of the DesPlaines River in the fur trade, some years after the latest of the early legislation on which the trial court relied. No other reference in this voluminous record tends to show any attempt to make any regular use of it as a mode of trade or travel. All of the other material upon which this case is attempted to be built up, relates to instances of individuals endeavoring by canoes or other small boats, usually unsuccessfully, and at long intervals, to make some use of the river.

Hubbard first came to Chicago September 30, 1818, in the employ of the American Fur Company. His narrative shows that for about six years, from 1818 to 1824, some use was made of the DesPlaines River by the traders of that company. The descriptions which Hubbard gives of those trips serve but to confirm all the other evidence going to show that the possible use of the river was "temporary, precarious and unprofitable." Such use, as is said in *Harrison* v. *Fite*, 148 Fed., 781 (C. C. A., 8th Circuit), is not sufficient to show navigability.

Hubbard's narrative discloses that during the time he was engaged as a subordinate employee, he urged upon

the superintendent of the American Fur Company th abandoning of the attempt to use the DesPlaines Rive at all, and that when he himself became superintendent i 1822, he did abandon it altogether, in order to avoid "th long, tedious and difficult passage through Mud Lak into and upon the DesPlaines." One round trip wa made each year, the down trip being in the high wate of the fall, and the return trip in the high water o the spring. Once Hubbard took the long route aroun by the St. Joseph River to the Kankakee River to reac the posts on the Illinois, one reason he gives being t avoid "the delays and hardships of the old route throug Mud Lake and the DesPlaines." (p. 223.) In places o the DesPlaines the boats were unloaded and the good carried on the backs of the men over shallow places, an the boats passed over by means of rollers under them until the Illinois River was reached. (pp. 120, 123.) A times the water in the river was so low that it could b crossed on foot without wetting the skin of the feet. (221.)

Hubbard says that the superintendent, Deschamps having resigned, he was appointed to succeed him; an proceeds:

> "I now determined to carry out a project whic I had long urged upon Mr. Deschamps, but withou success: that of unloading the boats upon their ar rival at Chicago from Mackinaw and scuttling them in the slough to prevent their loss by prairie fire until they were needed to reload with furs for th return voyage. The goods and furs I proposed t transport to and from the Indian hunting ground on pack horses. *In this manner the long, tediou and difficult passage through Mud Lake into an down the DesPlaines River would be avoided, an the goods taken directly to the Indians at their hun ing grounds, instead of having to be carried in pack on the backs of men.*" (Abst., 221.)

It is interesting to note that the first white man engaged in trade in this territory, and the last man who ever attempted to use the DesPlaines for any purposes of trade, came to precisely the same conclusion. For LaSalle, writing in 1682, said:

> "The Chicago (DesPlaines) River is not even navigable for canoes, except after this flood. The waters are always drained in the month of March, so that it will be easier to transport the goods by land from Port St. Louis to the Lake, making use of horses, which it is easy to procure there." (Abst., 35.)

He further said that that river "does not have any water most of the year." (Abst., 36.)

e.

THE OFFICIAL RECORDS SHOW THAT THE DESPLAINES RIVER HAS ALWAYS BEEN CLASSED BY THE UNITED STATES AS NON-NAVIGABLE.

The opinion expressed by the War Department when the plans of the dam in question here were submitted to it, that the DesPlaines was not navigable, was in accord with the attitude of the Government toward that stream from the time of the earliest settlement, as is shown by the official records.

Graham & Phillips, in a report of the Department of War dated December 28, 1819, to the House of Representatives upon the practicability of uniting by a canal the waters of the river and the waters of Lake Michigan, among other things said:

> "On opening the canal, however, two difficulties would be experienced:
>
> 1st. The Plein (DesPlaines) would be found to be above the level of the canal; its water, of course, would be diverted from its natural channel, and pass by the canal into the lake.
>
> 2nd. *Supposing that evil remedied by a lock to*

> *lift vessels into the Plein, yet the Plein, during half of the year, does not contain water enough to float a boat,* AND SO COULD NOT BECOME USEFUL AS A NATIONAL HIGHWAY." (Abst., 115.)

In the same report, commenting upon the varying length of the portage at different seasons of the year, Graham & Phillips said that at one season

> "there was a portage of fifty miles, from the mouth of the Plein to the lake; over which there is a well beaten wagon road, and boats and their loads are hauled by oxen and vehicles kept for that purpose by the French settlers at the Chicago." (Abst., 116.)

This accords with the narrative of Tanner, *supra.*

Gen. James H. Wilson, in a report to the Secretary of War dated December 17, 1867, upon a survey to prepare plans and estimates for a system of navigation by way of the Illinois River between the Mississippi and Lake Michigan, speaking of the DesPlaines, said:

> "The river itself, except in floods, is very shallow, being often reduced in dry seasons to a mere brook, discharging less than 1,000 subic feet of water per minute." (Abst., 161.)

He further stated that

> "The DesPlaines in low water contributes a compartively inconsequent quantity to its volume (the volume of the Illinois). The Kankakee supplies water sufficient to make a good slack-water navigation. The DesPlaines of itself, does not." (Abst., 2844.)

General Wilson made a report dated February 15, 1867, on a survey of the Illinois River, which report, among other things, said:

> "The practical conclusion from the foregoing statement is that a method of improvement by feeding from Lake Michigan as a reservoir, is feasible between LaSalle and Grafton, but above that point it will be necessary to employ locks and dams, and small sections of canal at Lockport and Joliet and Marseilles Rapids." (Abst., 2396.)

Major Benyaurd, in a report dated September 2, 1882, ncerning a waterway between Joliet and LaSalle, said:

> "It is evident, after consideration, that the only feasible plan to render the stream navigable is to slackwater the whole distance." (Abst., 655.)

A significant feature of this report was the recogni- on by the engineers that, because the stream was not, its natural condition, navigable, the Government ould have to pay for lands affected by any such im- rovement to make it navigable. They said:

> "Certain lowlands will necessarily be submerged, * * * very little of it, however, is of any considerable value, and can very easily be estimated for * * *." (Abst., 655.)

The same suggestion occurs in the Ernst report of 905, shortly to be mentioned.

In the Barlow report to the War Department dated ovember 18, 1900, of a survey for the improvement of ie upper Illinois River and lower DesPlaines River, with a view to the extension of navigation from the Illi- ois River to Lake Michigan," appears the following:

> "While the upper Illinois and Des Plaines Rivers *are at present nonnavigable*, the commerce of the Illinois and Michigan Canal which has been constructed in the valleys of these rivers, may be taken to represent the present commerce of such a route." (Abst., 2855.)

The Barlow report recommended that the bed of the llinois River be improved and used from Marseilles to ie mouth of the Kankakee, "thence by enlarging the Illi- ois and Michigan Canal to the Joliet basin, 18.3 miles." Abst., 2855-2856.) This cut out entirely the portion of ie DesPlaines River in which appellants' dam was to be ected.

The Ernst Board of United States Engineers in 1905 ecommended an improvement of the DesPlaines and

upper Illinois by locks and dams, with canals, however, from Dam No. 1 at Joliet to the head of Lake Joliet, and a canal at Marseilles. In that report the rights of the owners—and especially of water power owners—to be compensated, were expressly recognized. Under the heading "Vested Rights" reference was made to the value of water power rights, and the report said:

> "The plan submitted is not designed to develop water power, but there will probably be no difficulty in modifying it so as to conform to such development, *if those who are to benefit thereby, will cooperate with the Government.* They should pay the cost of the dams and the damage from flowage, which is no more than they would be compelled to do if the Government made no improvement." (Abst., 2857.) (Italics ours.)

This clearly indicates,—as indeed, does the whole report,—that the DesPlaines was not navigable, for if navigable, the Government was not under obligation to consider that the property owners had a vested right to maintain dams obstructing commerce, without the consent of Congress.

f.

THE REPORT OF THE ENGINEERS EMPLOYED BY THE STATE OF ILLINOIS IN CONNECTION WITH THE LAYING OUT OF THE ILLINOIS AND MICHIGAN CANAL, SHOW THAT THE DESPLAINES WAS NOT ONLY NOT NAVIGABLE, BUT COULD NOT FURNISH SUFFICIENT WATER TO SUPPLY A NAVIGABLE CANAL.

The earliest report of the Canal Commissioners was dated January 3, 1825, and it stated that neither the Illinois, above the mouth of the Little Vermilion, nor the DesPlaines, was navigable in low stages of water. (Abst., 2824.)

It is noteworthy that this declaration, was made nearly

a century ago, and had reference to navigation as then carried on, and was but three years after the last attempt of the American Fur Company to use the Des-Plaines at times of flood in spring and fall. At that time, as the report shows, the navigable waters of the Illinois River and Lake Michigan were "remote from the inhabited parts of this state." (p. 2823.)

Mr. Bucklin, an engineer employed by the canal commissioners, in a report dated January 21, 1833, said:

> "The River DesPlaines when low, affords a very inconsiderable quantity of water." (p. 2830.)

In another report, after stating that the Calimic (Calumet) could safely be relied upon as furnishing 320,000 cubic feet per hour as its minimum discharge, and that an additional supply of 102,400 cubic feet per hour would be required for the canal, said:

> "It has been also proposed to effect a water communication between the lake and the Illinois River by means of dams and locks in the DesPlaines, forming a still water navigation. Knowing the minimum discharge of this river, the impracticability of this scheme is so evident that the subject is here noticed more as a matter of form, than with any expectation of rendering it clearer. It will be recollected that the quantity of water provided for the passage of 96 boats over the summit level every 24 hours in the canal, is 86,400 cubic feet per hour. * * * *The minimum discharge of the River DesPlaines is only* 60,000 *cubic feet per hour. Of course, it is not competent to supply even the lockage* * * * *without taking into consideration the loss by evaporation and leakage, which would alone consume at least* seven times the quantity of water discharged by the River DesPlaines at its lowest stage." (pp. 2831-2832.)

In 1837 Benjamin Wright, an eminent engineer, was appointed by the Board of Canal Commissioners to examine the route of the canal as then established, with a

view to ascertaining whether there was a sufficient quantity of water within the legitimate authority of the State of Illinois to supply a canal of the dimensions of the one then contemplated upon the summit level of the line of the canal. Mr. Wright reported to the Board of Commissioners October 23, 1837, saying (Abst., 2835):

> "The DesPlaines River was not in a proper situation to gauge, as there had been copious rains; I, therefore, take the former measurements of the United States Engineers, as stated in the reports of the Canal Committee, at 54,800 cubic feet per hour."

The report then showed that when the canal was in operation it would require not less than 500,000 cubic feet of water per hour, and he continued:

> "These premises being admitted, we have to look for 445,200 cubic feet of water per hour more than the DesPlaines gives us at low water." (Abst., 2835.)

In the report of the Canal Commissioners to the General Assembly in July, 1837, they state (Abst., 2051):

> "The past dry seasons rendered the measuring of the DesPlaines almost unnecessary, since for nearly four months the tightest dam that could be erected, would not, at the point for taking out the feeder, have saved water enough to propel a single pair of ordinary millstones."

Lyman E. Cooley, the chief expert witness for the Government, in a report to the Internal Improvement Commission of Illinois to Governor Deneen, February, 1907, said:

> "From the end of the twelve-mile level to Lake Joliet was seventeen miles,—a mere surface stream over the rock bed—with a steep declivity over the lower half of the distance descending to a level of 76.5 feet below Lake Michigan." (Abst., 1938.)

In the same report he said:

> "The DesPlaines River practically goes dry above Joliet." (Abst., 1938.)

In a work entitled, "Lakes to Gulf Waterway," written by Mr. Cooley in 1891, referring to the DesPlaines River, he said:

> "The record shows that about one-half of all notable rises in fifty-six years, have occurred at the spring break-up, when the river could not be navigated on account of ice, and that floods which have occurred at other times of a height of fourteen feet and over, have not for fifty-six years, averaged three days out of banks, and probably for one-half of this time, not above fourteen feet, or over the limit of 30,000 to 35,000, cubic feet per second, discharge, which is stated as the navigable limit in the above extracts * * *.
>
> The long low-water period, and the extremely small volume of flow at such times, makes it necessary to contemplate the full depth to be relied upon as available for navigation, the same as for the Chicago divide; *and also, to use water from Lake Michigan, even for an exclusively slack-water scheme of small proportions. The present small canal has always had to rely on this source down as far as the Kankakee, and even below this point, the natural supply may, at times, be quite inadequate for any considerable commerce. The high water period is altogether too brief and uncertain to possess any availability for navigation greater than will be due to the minimum depths which the project contemplates.*" (Abst., 2031-2032.)

Isham Randolph, who was chief engineer of the Sanitary District of Chicago, and who presented to the War Department the protest against the building of the dam in question, stated in one of his reports that the entire low-water discharge of the DesPlaines River could be taken through a six-inch pipe. (Abst., 1075, 2849.)

Jacob A. Harmon, in a report of the Illinois State Board of Health, dated 1901, said:

> "The DesPlaines River at Riverside, a few miles above Joliet, goes entirely dry at that point nearly every fall, and for days and weeks at a time there is no appreciable flow. * * * Practically all of the

flow of the DesPlaines River as it reaches the Illinois, is therefore, during dry weather, Chicago sewage." (Abst., 2817-2818.)

There was also introduced in evidence in this case and in the State case, a chart of certain gauge readings at Riverside which is of the utmost importance as showing the condition of the river in a state of nature, because these readings were taken at a point above that where the waters of Lake Michigan were conveyed into the DesPlaines by the Illinois and Michigan Canal and the Sanitary District Canal. We show elsewhere that the Court of Appeals failed utterly to understand the significance of these gauge readings.

The Supreme Court of Illinois refers to this evidence as follows:

> "A chart showing the gauge readings at Riverside, a point twenty-eight miles above Joliet, shows the number of days in each year during which the river was dry at this point, which indicates that there were from twenty-four days in 1890 to two hundred and thirteen days in 1895 during which the river was dry at this point. This chart also shows the number of days during each of these years when there was a discharge of less than six inches of water at Riverside, the result of which is, totaling the number of dry days and the days showing less than a six-inch discharge, that there were from one hundred and twenty days in 1888 to three hundred days in 1901 when the river was either dry or showed less than six inches of water at Riverside. The depth of the river during the balance of the year is not shown on this chart. These gauge readings also show that the dry or low periods did not occur during the same time in each year. Every month in the year is represented several times during the years covered by this chart, from which the conclusion is drawn that there were no regular periods when a given stage of water could be safely expected.
>
> We refer to the readings on the Riverside gauge,

not because of their bearing on the question of navigability, at that point, but for the reason that they tend to show the natural volume of water in the channel above the points where the volume is increased by the additions made by the Illinois and Michigan Canal and the drainage channel, which added from 250,000 to 400,000 cubic feet of water per minute to the river below the point of connection."

People v. *Economy Light & Power Co.*, 241 Ill., 323-324.

g.

TESTIMONY OF EXPERTS AS TO NAVIGABILITY OF THE DESPLAINES.

Expert witnesses were called on behalf of both parties in the State case, and their testimony was introduced in the instant case. Robert Moore, former president of the American Society of Civil Engineers, a member of the Board of Engineers planned for the United States the deep waterway channel in the Mississippi known as the Southwest Pass, which has now a greater channel than the Eads Jetties. (Abst., 2601, 2605, 2606.)

L. L. Wheeler was for many years in the employ of the United States government in connection with its waterways, and had charge of the construction of the Hennepin Canal, and also of the survey of the DesPlaines River for the United States. (p. 2683.)

Thomas T. Johnson devised the methods by which the Chicago Drainage Canal was afterwards dimensioned, and he conducted the measurements of the flow of the DesPlaines River. (Abst., 2733.)

These witnesses all testified that the river was not navigable.

In addition, nine expert navigators of large experience testified to the same effect. One of these was the

president of the Anchor Line running from St. Louis to New Orleans, Isaac N. Mason (p. 2679), another William P. Grey (p. 2769), whose exploits in swift water steamboating upon the Snake River, are probably unparalleled in the history of the country.

It was our contention in the State case, however, and it is our contention now, that expert evidence as to navigability is of but little value as against the significance of the fact that "no use for purposes of commerce has ever been made of the river."

The Supreme Court of the State of Illinois in the Economy Light & Power Company case, 241 Ill., 336 said:

> "A large number of witnesses testified, some from personal observation, and others as experts upon this issue. As might be expected, these witnesses testified to opposite opinions in regard to the navigability of this river. It is not practicable nor desirable to discuss this evidence in detail. Whatever may be thought of the preponderance of it one way or the other, it can have but little weight as against the uncontroverted fact that the river has never been used as a public highway for commerce."

In the present case the United States introduced four additional experts. Not one of them testified that the DesPlaines was a navigable stream within the definition laid down by the authorities.

Montgomery Meigs said that according to his definition of a navigable stream, any brook up or down which a boat drawing six inches of water, could be forced, is a navigable stream. (p. 876.) The river having been described to him in a hypothetical question (pp. 872-873), he said that in his judgment it was not capable of being used for purposes of profitable navigation in the way in which commerce is usually carried on to-day. (p. 877.) And he further testified that as he saw it on the 28th of

December, 1910, he should say it was not capable of being profitably used for purposes of commerce under its then condition, and he admitted that it was only common sense to conclude that the river was not navigable if there was no evidence that, when there were no railroads, and in the spring of the year when the country was soft any settler living along its banks, ever came to Chicago by that river. (Abst., 880.)

Another witness called by the government was B. F. Thomas, who, with Meigs, made an inspection of the river on the same day, the afternoon of December 28, 1910. He judged from what he saw, that it was navigable. (p. 812.) He took no measurements of depths, he knew nothing of the conditions at the bottom as to bowlders, he did not know what the fall of the river was. He admitted that the river could not be navigated by steamboats, and that he had never seen gasoline boats that could climb slopes such as existed upon that river. (Abst., 838-839.)

The testimony of the other two Government experts is negligible.

h.

THE OPINION IN PEOPLE V. ECONOMY LIGHT & POWER COMPANY, 234 U. S., 497, INDICATES THAT THIS COURT DID NOT CONSIDER THAT THE ACT OF MARCH 3, 1899, APPLIED TO THE DESPLAINES RIVER.

The writ of error taken by the State of Illinois was dismissed for want of jurisdiction. In order to decide only the question of whether the State court had jurisdiction to enforce a Federal right, it is submitted that the opinion in that case could have been limited, after the statement of facts, to a few words found on page 524: "The State is not the instrument through which the jurisdiction can be exercised." But the court considered not

only whether a Federal right was asserted in the co
below, but whether one existed.

We have above (p. 92) called attention to
references in that opinion to the submission of the pl
of appellant's structure to the War Department,
to the conclusion which the court reached: "It is ma
fest, therefore, that the State has no right under Fede
laws which it may assert for itself or on behalf of
the citizens of the United States."

To properly interpret the opinion and to understa
why this Court discussed certain questions in it, it see
to us necessary to have in mind that what this Co
said about those questions was in direct response to pe
tions taken by counsel for the State in their brief, an
tensive abstract of which is reported in connection w
the opinion. Counsel for the State insisted that a F
eral right existed, because the DesPlaines was a stre
which came within the scope of the Act of March
1899, relying, among other things, upon the Ordinance
1787 and the early Acts of Congress.

This Court disposed of the contention as to the Or
nance of 1787 in two ways, (1) by referring to the *Wi*
mette Iron Bridge Co. v. *Hatch,* 125 U. S., 1, which ho
that the Ordinance had no such effect as was sou
to be given to it in this case, and (2) by stating that
fact of navigability having been decided against the St
by the State court, there was no Federal right left to
reviewed.

This Court also took up the claim of counsel for
state that the Supreme Court of Illinois excluded fr
consideration the fact that by reason of the addition
water by the Sanitary District Canal, the DesPlai
had, as was claimed, become navigable. Replying to
contention of counsel that "If those public rights

created or protected by Federal law, this court has jurisdiction to reverse the judgment," this Court said:

> "The inquiry immediately occurs, How did the so-called public right arise? From the mere addition of water to the river, or by the conditions upon which it was admitted?"

Further, it considered the claim that certain Acts of Congress appropriating money for a survey and estimates of cost for the improvement of the upper Illinois and lower DesPlaines Rivers in Illinois, was a recognition by Congress of the navigability of the river, and disposed of it as follows:

> "The cited Acts are not appropriations for improvements undertaken, but for improvements which may be undertaken; not a jurisdiction exercised, but a jurisdiction to be exercised."

We submit that these observations by the Court, while not necessary to the decision that the case should be dismissed for want of jurisdiction—which conclusion resulted from the holding that the State could not assert a Federal right—indicate the opinion of this Court as to the effect of facts which are vital in the decision of the present case. In effect this Court said that not only did it have no jurisdiction over the case, but also that the United States had no jurisdiction over the DesPlaines River.

Point XII.

THE COURT OF APPEALS WAS LED INTO MANY ERRORS OF FACT, AS TO MOST OF WHICH, THERE WAS NO CONFLICT IN THE EVIDENCE.

The opinion contains many errors of fact. The Court is not called upon to weigh conflicting evidence as to most of these. In important particulars the Court of Appeals stated as facts, matters which were supported by no

evidence whatever but were in contradiction to all the evidence. Thus the Court says (256 Fed., 798):

> *"After the year* 1848, *when the Illinois and Michigan Canal was constructed, commerce that had formerly been carried on the DesPlaines River was carried on the canal."*

In this statement the Court was misled by an assertion contained in the brief of counsel for appellant. This statement conflicts with the statement upon the same page as follows:

> "The trial judge found, as the record shows, that there is no evidence of actual navigation within the memory of living men."

There were a number of "living men" who were witnesses in the State case and whose evidence was read in the instant case, who lived along the banks of the DesPlaines prior to 1848. Some of the testimony was introduced by appellant and other like testimony by appellee. None had ever seen any boat larger than a skiff or rowboat upon the river and none had ever seen a boat upon it engaged in carrying passengers, produce or merchandise of any kind. Nearly all said it was incapable of such use.

In the opinion of the Supreme Court of Illinois, upon precisely the same evidence as to the attempted use of the river prior to 1848, it was said:

> "There is not in this entire record a well authenticated instance in which a boat engaged in commerce navigated the waters of the DesPlaines River."

a.

THE IMPLICATION IN THE FINDING OF THE COURT OF APPEALS THAT COMMERCE WAS CARRIED ON THE RIVER PRIOR TO 1848, WHICH WAS THEN SUPERSEDED BY THE OPENING, AND USE OF THE CANAL, IS CONTRARY TO ALL THE EVIDENCE ON THE SUBJECT.

Since we are undertaking to show that there is no evidence whatever upon which this finding of the Court can be sustained it will be necessary for us to refer to the testimony of every witness who resided along the banks of the river prior to 1848.

Franklin Collins came to Will County in 1833. He never saw or heard of boats carrying freight or merchandise on the DesPlaines River; there was no other way of getting produce to Chicago than by ox or horse teams, and he said "most emphatically" that in view of the difficulty in transporting merchandise and supplies to and from Chicago, if it had been possible to use the DesPlaines River it would have been used, and that, in his opinion, the only reason the river was not used was because it was not capable of being used. (Abst., 2586.)

George W. Read settled in Will County in 1829, and in 1833 he had seen a party going down the DesPlaines River singing and saying they were going to a warmer country, and that was the only boat, except skiffs, that he had ever seen. There were not many skiffs going up and down, only just what were used in Joliet *for the purpose of crossing the stream.* (p. 2104.) Read testified that the grain raised on his father's farm was taken to Chicago by ox teams, that the roads were full of teams going and coming. (Abst., 2105.)

Jeremiah Collins came to the vicinity of the DesPlaines in 1834. He never knew or heard of the river being navi-

gable, had never seen any navigation on the Illinois R
along where his father's farm was, or ever heard of
above Ottawa, and did not think there could have b
any without his knowing it. (Abst., 2649.)

John P. King lived in Will County since 1834. He
never heard of any boat being operated on the DesPlai
River at any time, for commercial purposes. A s
could not be navigated on that part of the river ab
Lake Joliet during flood seasons. He said "if you wan
to take the chance of getting drowned you could n
gate a skiff down the stream during flood seasons.
would not want to do it." He could cross the river
the riffles or rapids without getting his feet wet perh
two or three months in the driest part of the season,
for five or six months during the year the river would
at such a stage of water that it would be impossible
navigate rowboats up and down over the riffles with
dragging the boats. (p. 2559.) That the water wo
be low at least nine months out of the year. This is c
roborated by the readings of the Riverside gauge he
after to be referred to.

John McCowan came to the DesPlaines in 1835
wagon from Chicago. He said there was no other av
able means of getting into that country at that time
2593); that he had never seen or heard of boats ply
the river carrying merchandise or passengers; that
only way of getting produce to Chicago was by tea
and that he did not think it possible for boats to h
gone down the DesPlaines since 1835 *and up to the d*
of his testimony. (p. 2592.)

Adam Comstock came to Joliet in 1836. He "ne
knew of any boats used in the DesPlaines River for p
poses of commerce, such as carrying freight or pass
gers; never heard of any such boats before 1848 or aft

wards." He further testified that a skiff would have to be pretty skillfully handled or it would be apt to capsize, and that he never knew of anyone rowing a skiff from its mouth up the river during the high water season. (p. 2562.) He also had crossed the river without getting his feet wet.

David Layton had lived on or near the DesPlaines River since 1837, coming there when he was nine years old. He had never seen any boats carrying freight or passengers, or used for commercial purposes, navigating the DesPlaines River at any place at any time; he had never heard of its being navigated; they could not come up by water any further than Ottawa before the canal, and they used to bring it from there by teams to Joliet, and merchandise was always brought between Chicago and Joliet by team. He himself, when fifteen years old, hauled wheat to Chicago. (Abst., 2553.)

John W. Taylor came to Illinois in 1837. He never saw any boats carry anything on the river. (Abst., 2276.)

G. H. Erhard was born in Joliet in 1838. He never saw boats used for commercial purposes except that he had seen rafts coming down the river. The rafts went to the Haven sawmill, near Joliet. He said that he had heard of merchandise being shipped on the river but he had no positive knowledge of any such transaction. (Abst., 2106-2108.)

George Alexander had lived in Will County since 1838. He had never seen any boats on the river carrying passengers or produce, and that nobody else had. (pp. 2487-2488.) That he had seen no boats except skiffs, and that, in the summertime, during ordinary stages of water, a well-loaded skiff could not go over the riffles. He also testified as to the stage route to La Salle.

Xavier Munch came to Will County in 1839. He never

saw any boats going up or down the river, except
boats. (Abst., 2516.)

William S. Myers had lived on the river since 1
When he came there he was twenty-six years of age.
testified that no boats used for commerce ever ra
or down that river, and that merchandise from St. L
was brought to Ottawa by boat and thence to Lock
by wagon. (Abst., 2507.)

Harlow H. Spoor was born in 1820 and moved to
County in 1844. He testified that he had heard of a
ticular circumstance related in a book called Woodr
History of Will County on the Kankakee.
story as there told was that in 1834 some
ties loaded a boat with oats, wheat and h
with the design of taking them to Chicago
supply the garrison stationed there; that the trip d
the Kankakee was accomplished without accident or
usual trouble, but after entering the DesPlaines, w
near Treat's Island, the boat dipped water and so da
ened the grain that they were obliged to unload and
to dispose of their produce at that point. (pp. 2217, 2
2233.) If this tale were true it amounted only to t
that an attempt to come up the DesPlaines came to g
a little above its mouth. Spoor testified:

> "I don't know that I ever heard of a boat g
> from Joliet to Chicago on the Des Plaines with g
> or merchandise, that is not about their going thro
> the whole length of it, only this circumstance a
> the boatload of grain I was telling you about. *
> *I don't recollect at the present time any other*
> *that I ever heard of ever attempting to go up or d*
> *the Des Plaines with merchandise.*"

Spoor himself disposed of the story that boats ca
ing grain went down the Des Plaines, for he testified
grain was hauled by wagon.

"I don't think they hauled it by boats, because they had no way of hauling them." (Abst., 2234.)

George F. Gurney knew the river from 1845. He had never heard of commerce being carried on the Des-Plaines. There were riffles in the river which would break any boat. (Abst., 2508.)

Jacob Adler was familiar with the river before the canal commenced operation in 1848. He never saw a boat on the Des Plaines for commercial purposes. It was impossible for any boat to run up and down the river he said, giving his reasons. (p. 2538.) He had been on the river in a skiff, but in summer while the river was in its normal condition it was not possible to navigate a rowboat over the riffles; they got out and pulled it. (p. 2539.) He had never heard of any boats plying on the Des Plaines, transporting freight or passengers,—it would be impossible.

James Boyne came to Joliet in 1844 or 1845. He had never heard of any boats on the Des Plaines carrying passengers or freight. Produce could not come down the river because the river would not carry a boat. (p. 2521.) A skiff could not always be taken all the way up the river. (Abst., 2522.)

Lewis K. Stevens had lived in Joliet since 1836. He had never heard of any boats on the Des Plaines River used for commercial purposes. He said it would be an impossibility. (p. 2524.) Some seasons you would not know that the water run. You could walk over the rocks; it would seep through,—almost dry in places. Never saw any boats except little rowboats on the river. He described the dams and said that if there had been no dams it would have been impossible to have navigated the stream. (Abst., 2526, 2527.)

James C. Keen, born in 1824, came to Will County in

1843, coming to Chicago by boat and then by wagon Plainfield. Never knew and never heard of any boat the river used for commercial purposes, or of any me chandise or produce being carried on the river. (Abs 2569.)

Enos Field came to Illinois in 1847; he came by bo up the Illinois to Peru, from there there were teamste carrying freight by wagon to Chicago, and he never kn of any produce or freight carried on the Des Plaines of any boat transporting merchandise or freight. (Abs 2572.)

Urias Bowers came to Joliet in 1844, being then elev years old. His business has been boating along t Illinois River and the Illinois and Michigan Canal. H never knew of any boats carrying freight or passe gers on the river, nor of anything more than a ski (Abst., 2577.)

Oliver S. Chamberlain came to Will County in 183 and never saw or heard of any boats bearing produ or freight of any kind upon the Des Plaines. (Abst., 258 2581.)

R. W. Killmer came to Joliet in 1844, being th twenty-two years old. There was no way of gettin supplies or produce into that territory from Chica except by teams. He never saw nor heard of any bo navigating the river. There were times when there w scarcely any water running over the riffles. It was h opinion that if the DesPlaines ever could have been us that it would have been used. (Abst., 2599.)

James G. Elwood was born in Lockport in 1839 a moved to Joliet in 1843. He never knew of any boa on the river except skiffs, and he said he would n venture to send any produce on the river by any bo

adapted to commercial purposes. He boated and fished on the river but never took a boat up stream, as he never had any desire to go up against the current or the boulders. He had known the river at times to be so dry that no water was passing through it. (Abst., 2658, 2659.)

Samuel Gatons, a witness for the Government, came to Will County in 1844. He saw nothing on the river but a yawl boat, and that was when he was three and one-half years old. (Abst., 2272-2274.)

We have now referred to the testimony of every witness on each side who knew the Des Plaines prior to the opening of the canal in 1848, *and none of them knew or had heard of commerce carried on the river.*

b.

THERE IS NO EVIDENCE THAT IN EARLY DAYS BOATS OF THE DIMENSIONS GIVEN IN THE OPINION OF THE COURT OF APPEALS, WERE EVER USED ON THE DESPLAINES RIVER.

Another assertion of fact by the Court of Appeals which is without foundation in the record is the following—(256 Fed., 798):

> "Large quantities of supplies of various kinds needed by the settlers in a new country were also transported over the Des Plaines during the same period in boats of the size and character then commonly used in river commerce; this transportation being carried on between Chicago and St. Louis and other points. Canoes of several tons burden were used; some were 35 feet long by 6 feet wide, some 33 feet long by 4½ feet wide, worked by paddles and occasionally a sail, and had a crew of eight men, carrying as much as 6,000 pounds of freight, as well as 1,000 pounds of provisions. Pirogues were manned by six or seven oars; the bateaux were larger than the pirogues; the Durham boats were heavy freight craft 60 feet long, 8 feet wide, 2 feet deep,

with a capacity of 15 tons, drawing 20 inches
water."

There is not in the entire record a description
the dimensions of any boat used upon the Des Plain
River. In nearly every instance where boats were
ferred to they were canoes, and the record shows th
they were light boats which could be picked up and ca
ried for many miles. These dimensions of various kin
of boats were read into the record from various wor
but in no case was the quotation with reference to the u
of boats on the DesPlaines. The description
pirogues was taken from the Century Dictionary a
from the account of the journey of Lewis and Clark
the Missouri and down the Columbia. The Durham boa
were, as Prof. Thwaites said—"of the sort that th
navigated the Great Lakes with."

The only mention of Mackinaw boats in the reco
was in connection with the few seasonal trips made
the American Fur Company, which abandoned the u
of the Des Plaines because of the great difficulties e
countered, as pointed out in another portion of this bri
Thwaites expressly stated that he did not know what t
draft of the boats used by Hubbard in the fur trade wa
(Abst., 498, 499.)

The entire record contains but one reference to a Du
ham boat; that appears in "Drown's Peoria," an alm
nac, dictionary and advertising medium of flimsiest cha
acter, in which it is stated that in 1825 one John Haml
exported produce from Peoria to Chicago, carrying it
the DesPlaines part way in keel boats and part in Du
ham boats, building a storehouse at the mouth of t
Kankakee. This statement is highly improbable f
many reasons. First, because there is no other instan
in the whole record of the produce of the country bei

carried up the upper Illinois or DesPlaines by boat; second, because the physical conditions made it impossible for boats of that character to pass up or down the river, third, because persons who settled in the neighborhood within a few years thereafter, never heard of such an event or of any storehouse said to have been built at the mouth of the Kankakee, and, lastly, because there was no settlement at Chicago at that time which could have justified such an undertaking. There were but nine people in Peoria in 1825 and but three or four families in Chicago. (Abst., 1820-22, 1930-1932.)

The garrison had been removed from Chicago in 1823. (Abst., 1471.) At the period in question there was produced in Chicago "an abundance of all the luxuries of farm, cornfield and dairy." The difficulty was how to dispose of the amount produced. (Abst., 1472.)

c.

THE COURT OF APPEALS ALSO ERRED IN THE FOLLOWING STATEMENT:

"COMMERCE OF THIS CHARACTER EXISTED UNTIL ABOUT THE YEAR 1825. AFTER THAT YEAR THE FUR TRADE, HAVING RECEDED TO THE INTERIOR PORTIONS OF ILLINOIS, WAS REACHED MORE GENERALLY BY HORSES."

The reason why the fur trade was reached by horses is clearly given by Hubbard, the superintendent of the American Fur Company, which alone at that time was carrying on that trade in a passage quoted *supra*. That reason was the same which caused La Salle, the first white man who ever traded in that country, to say that it would be better to use horses than to attempt the use of the DesPlaines. Prior to 1825 the fur trade was already in the interior portions of Illinois. There was no change in that particular at that

time. Hubbard gave up all attempts to use the De Plaines in 1824.

d.

THE COURT OF APPEALS WAS IN ERROR AS TO THE ALLEGED US OF THE DESPLAINES "FROM THE LATTER PART OF THE SE ENTEENTH CENTURY THROUGH THE FIRST THIRD OF TH NINETEENTH CENTURY."

The Court of Appeals (256 Fed., 797), in the para graph entitled, "Use of DesPlaines River," says tha

> "from the latter part of the Seventeenth Centur through the first third of the Nineteenth Centur men engaged in the fur trade passed up and dow the Chicago and DesPlaines River in canoes an float boats very regularly. Fourteen specific in stances of the use of the DesPlaines down to th year 1830 are shown in the evidence as follows:"

The court then lists the trips to and from Chicag which constituted these fourteen specific instances. Mos of these trips were in light canoes, in the sprin or fall floods, and were not made by persons engaged i the fur or any other trade. The trips referred to wer as follows:

> "Up the river, Joliet and Marquette, 1673, ligh canoe. No actual evidence that the DesPlaines wa used at all. (Abst., 1531-1532.)
>
> Perrault, 1783. All that appears is that he wa directed to 'pass by Chicago.'"

This did not mean that the DesPlaines was use by Perrault, for La Salle, who had occasion to reach th Illinois with more extensive trade than any other perso went by the St. Joseph River passing Chicago (Abst., 2 279, 1601-1604), and Collot went to Chicago by way o the Calumet. (Abst., 88.)

> Joutel, 1688. Joutel went to and from Lak Michigan on foot. He made two trips on land for

distance of thirty or forty leagues, and although having canoes, they did not use them because there was no water in the river. On a third trip the canoe was dragged through the water. (Abst., 1739-1744.)

Hubbard, 1819. In time of flood.

Child, 1821, in a light canoe, with no cargo. No month given but in a time of high water so that he crossed the DesPlaines to the Chicago River in his boat; probably at a time of spring flood.

Tonty, in 1680. As to which trip there is no evidence that it was made in a boat. (Abst., 33.)

La Salle, 1681. On foot. (Abst., 1609-32-33.) His destination was not Chicago but St. Joseph.

Fonda, 1825. In a light canoe. (Abst., 1701.)

The trips from Chicago, referred to by the Court of Appeals, were:

Membre, 1682, on the ice, a distance of 80 leagues.

St. Cosme, November, 1698. Eleven or twelve days consumed, with a portage of 17-1.2 leagues, which practically eliminated the DesPlaines River. (Abst., 49-50.)

Hubbard, 1818. Under great difficulties, pointed out in his narrative—the goods being unloaded and the boats being put on rollers. (Abst., 123.)

Marquette, 1674. In time of flood in a light canoe. Marquette himself speaks of the ease of making portages of 30 leagues carrying his canoe, which gives a very good idea of the character of the boats used. (Abst., 1461.)

Heward, 1790, in a Pirogue, in the spring floods at a period of extreme high water. He speaks of a portage along rapids. Some of his men after passing Joliet told him that because of the dangers they might not return with him. (Abst., 82.)

Furman, April, 1829. In a canoe—the prairie being flooded. (Abst., 1703.)

We submit that the fact that these are the only specific instances the court could find of actual use of the river in a period of one hundred and fifty years, rebuts its conclusion that during that period "men engaged in the fur

trade passed up and down the Chicago and DesPlai
Rivers in canoes and flat boats quite regularly."

The Court of Appeals proceeds to say:

> "Many other trips made during the same peri
> not so well authenticated, are disclosed in the e
> dence."

This statement is without any support in the reco
and
~~nor~~, with the exception of a trip by Cass in a light ca
(Abst., 1321), no reference was made to ot
trips. It is true, as the court says, that th
are numerous historical references to the Chicago a
Illinois route. It is also true that that was a gene
designation of the route from Lake Michigan to the I
nois River, and that practically the Desplaines often
not used at all in traversing that route. Much of
time the portage extended all the way from Chicago
points well down on the Illinois.

On the other hand, the record contains accounts
attempts to use the river which failed. We have el
where referred to the experiences of Schoolcraft, K
nedy, Tanner, Charlevoix, La Houtan, La Salle and
Cosme, and the report of Graham and Philips.

We submit that in the light of these historical reco
and in view of the fact that in certain of
alleged specific instances of the use of the riv
listed by the Court of Appeals, the river was not u
at all, and of the difficulties involved in other of the tr
so referred to by it, the conclusion of the court that
stream was quite regularly used during the period m
tioned by the court is without foundation in the reco

Point XIII.

THE DESCRIPTION OF THE DESPLAINES CONTAINED IN THE OPINION OF THE COURT OF APPEALS IS TAKEN ALMOST BODILY FROM THE TESTIMONY OF LYMAN E. COOLEY. THAT TESTIMONY ITSELF IS FULL OF MANIFEST ERROR, AND IS LARGELY COOLEY'S OPINION OF WHAT THE RIVER WAS IN A STATE OF NATURE, NOT WHAT IT IS NOW. THAT OPINION WAS PURE CONJECTURE.

The chief engineering witness for the Government was Lyman E. Cooley, who admitted he had a deep personal interest in the result of the suit. (Abst., 669.) From 1875 he had devoted his time to the plan for a waterway joining Lake Michigan to the Gulf. (Abst., 670, 674.) He believed that the erection of the dam by the appellant was an obstruction to his cherished project, and he busied himself to procure the passage by the Illinois Legislature of the bill of December 6, 1907, recognizing the Des-Plaines and Illinois Rivers as navigable streams, and seeking to prevent obstructions being placed therein. That was aimed directly at the appellant. (Abst., 675.)

After its passage, Cooley, on behalf of the State of Illinois, swore, on December 30, 1907, to the information filed by the State against this appellant, and was employed by the State to assist its attorneys in the preparation and trial of the case.

From the beginning of that case to the end of the long trial he devoted nearly all of his time to it. (Abst., 675.) From the beginning of the present litigation he was very active in the preparation and trial, and was paid a *per diem* by the Government for his services.

His conclusions, as an engineering expert, had two aspects, first, as to navigable capacity of the river in a state of nature; second, as to its navigable

capacity in its condition after the construction of the Sanitary District canal. The true character of his work in attempting to depict the natural condition of the Des-Plaines, was indicated when he compared it with the work of Cuvier in reproducing an extinct mammal, or Agassiz in reproducing a fish from bones that are left. (Abst., 608.) Those scientists had an advantage over Mr. Cooley; the subjects of their hypotheses were extinct,—the DesPlaines River is here, and it is possible to see wherein he ignored, or misinterpreted, known facts, and assumed others which are unknown, whereby his conclusion becomes a mere hypothesis, and not a reliable indication of the river as it was in a state of nature.

Moreover, his hypothetical reconstruction of the river as it was in its natural state, and his testimony as to his knowledge of it before the connection with the Sanitary District canal, has this further disadvantage. Cooley had been writing about the river for years before this controversy arose, and he had made a distinct record as to his opinion of it which supports entirely appellant's contention, and is in agreement with the conclusions of the engineers engaged for the construction of the Illinois and Michigan Canal, and the various reports of Government engineers. In 1901 he wrote a report by the Internal Improvement Commission of Illinois, and in 1906 he wrote "The Lakes to the Gulf Waterway." In that he described the DesPlaines from the end of the Twelve-Mile Level to Lake Joliet, *as a mere surface stream over the rock bed,* with a steep declivity over the lower half of the distance descending to a level of 76.5 feet below Lake Michigan (Abst., 1938); and said, "*The Des-Plaines River practically goes dry above Joliet.*" Again, in 1891, he wrote:

> "The Desplaines has been measured twice for low water; in 1887, 256 feet per minute, and in 1879, 339

feet per minute, both between Riverside and Lockport." He said, "at least sixty per cent of the low water volume passing Morris in 1887 came from Lake Michigan by the Illinois and Michigan canal, and probably one-half of the volume in ordinary low water years comes from this source." (Abst., 2031.)

It will be seen later that these statements are in direct conflict with his claims as to an assumed depletion of the river by diversion into the canal. It recognizes what we elsewhere show to have been the fact that the canal did not deplete but added materially to the volume of the river.

In another report Mr. Cooley says (Abst., 754, 755):

"The dry-weather flow, or low-water volume, is very small, as has already been inferred from the physical characteristics of the watershed. In 1887, Salt Creek was entirely dry at Fullersburg. The DesPlaines, at Riverside, reached a minimum of 4.27 feet per second (256 feet per minute), and for five months did not exceed 1,000 feet per minute. The stream has been known to be lower than this, but has never wholly run dry.

In 1879, a discharge taken by Mr. Matthewson at Romeo, four miles above Lockport, gave a volume of 5.65 cubic feet per second (339 feet per minute). The minimum volume at Riverside would not be increased, in fact, might be diminished, in passing through 'the twelve-mile level,' by evaporation and vegetation, in the run to Joliet. Three hundred feet per minute may be assumed as the mean extreme low water at Riverside and at Joliet, with a volume below 1,000 feet for several months of nearly every year."

Other statements of Cooley of like character are referred to elsewhere in this argument.

Mr. Cooley ignored, or was ignorant of, certain other authoritative scientific writings, which stated facts inconsistent with his testimony that there had been no artificial additions to the river.

Ossian Guthrie, in his work "The Great Lakes a
Their Relations to the Lakes and Gulfs Waterway
gives a table of the operation of the Bridgeport pum
pointing out that they added materially to the volume
the river. (Abst., 1045.)

Leverett, in his "Water Resources of Illinois," e
said (Abst., 2050):

> "Prof. Cooley reports that at Riverside in 1887,
> reached a minimum of 4.27 feet per second; and
> *five months did not exceed* 16 2/3 *cubic feet*
> *second.* He estimates that for nearly every year
> extreme low water flow at Riverside and Jol
> reaches about 5 cubic feet per second."

Post and Paul, the engineers who made the first surv
that was ever made of the route of the Illinois a
Michigan Canal, found the discharge of the DesPlaines
be but 20 cubic feet per second. Dr. Howard, Unit
States civil engineer, in 1829 found it to be but about
cubic feet per second, and engineers Harrison and Gui
in 1830 found it to be about 17 cubic feet per secon
(Abst., 1071, 3085.)

Col. Wilson, Chief Engineer of the United States Arm
in his report on the DesPlaines of December 17, 18
said "*the river itself* (*the DesPlaines*) *except*
floods, is very shallow, being often reduced in dry se
sons to a mere brook discharging less than 1,000 *cubic fe*
of water per minute." (Abst., 1072, 2843.)

William Gooding, chief engineer of the Illinois a
Michigan Canal, in a report dated December 15, 18
(Abst., 2865) says:

> "DesPlaines River, Post and Paul, 1950, by Bu
> lin, 1000 per minute. * * * Calumet 5,333, D
> Plaines 1000, Dupage 1655—7998 cubic feet
> minute. * * *
>
> Quantity of water in all these streams continu
> to diminish till the 1st of November, when the to

would be about 7,300 cubic feet per minute for all three rivers. The water necessary to supply the canal from Chicago to Marseilles is 9924 cubic feet per minute, or a deficiency of 2624 cubic feet per minute."

"The construction of a perfectly watertight dam at Joliet has enabled us to ascertain with precision the quantity of water flowing in the DesPlaines. This river has been nearly dried up; the measurement on the 20th of September showing 338 cubic feet and on the 21st of the same month 373 cubic feet per minute." (Abst., 3116.)

From these statements it is certain that Mr. Cooley was in error in stating that a considerable volume of water was to be found in the DesPlaines in a state of nature, and that it had been depleted by the changes in the river.

Cooley's estimate, incorporated by the Court of Appeals in its opinion, of the number of days when, in a state of nature, boats could pass over the divide between the DesPlaines and the Chicago, or down the DesPlaines River has no value, because it depends entirely upon the accuracy of Cooley's hypothetical reconstruction of the river as it was in a state of nature. It has to do with a laboratory, and not a real, river. He says he made his computations by taking into account the increase of the volume which would result from an increase of drainage area down the stream, and deductions in area from a state of nature, because of the drainage of certain swamps and the addition of certain other areas. He also took into account assumed deficiencies in rainfall and runoff, due to deforestation, and also the effects of inhabitation.

The fact that the depths are given with remarkable nicety of precision even to tenths of feet, discloses that they must have been premised either upon precise data

as to all hydraulic factors involved in the conditions dur
ing a state of nature, which is impossible, or on a ver
liberal assumption of those hydraulic factors, which lat
ter is obviously the fact.

The liability to error in making computations of th
volume of flow, is illustrated by the fact that the Sani
tary District Channel, of practically uniform depth an
width, and every hydraulic factor of which was sup
posed to have been precisely ascertained, was compute
to carry 10,000 cubic feet per second. When it was com
pleted according to the specifications upon which the com
putation was based, it had a flow of 14,000 cubic fee
per second (Abst., 2066), and Mr. Cooley had charge o
that matter. Consider then the absolute impossibilit
when the hydraulic factors are as uncertain as they ar
here, of computing the depths with any approximation o
accuracy. The margin of variation between the depth
given, and those which would be prohibitive of the navi
gation Cooley describes, is so small that his conclusio
cannot be more than an interesting hypothesis. They ar
a matter not of feet, but of inches of depth.

One of the most important factors in his computatio
was his assumption of what certain flood levels over th
divide between the Chicago and DesPlaines Rivers woul
probably have been had it remained in a state of natur
Yet he testified he had never seen a cross section of th
original divide, and does not think one could make a
accurate determination of a probable flood line in a stat
of nature, without a map showing the depth, and widt
of the country east of the divide and all the hydraul
elements therein. For his purposes he caused one Par
to make a drawing, called "Parry's Exhibit 2," wher
in he assumes to depict these flood lines. But he al
assumed the elevation of the original bottom, which w

the most important factor in determining the nature of the divide. (Abst., 691-693.) Parry said he "simply followed Mr. Cooley's instructions" in the making of it, and that the "probable flood line" of 1892 across the divide, "is not intended to be accurate." (Abst., 549.)

Again, the futility of attempting to predicate navigation upon a flood condition, is shown by the fact that according to Cooley's testimony the flood of 1892, when he says a steamboat could have passed over the divide had it remained in a state of nature, was at the line he computes only for one day (Abst., 695), and, as we have shown, in his writings he had stated that the floods, subsided with great rapidity. Again in connection with the flood of 1881, which Cooley used as an important factor in his computations, he could not recall who made the data from which he projected the elevation which that flood would have shown on the Riverside gauge. (Abst., 694.) He disclosed that, among others the factors lower down the river upon which he premised his upper volumes, he considered an amount of water, which he could not recall, used by the canal and mill wheels in Joliet. (Abst., 695-696.)

Mr. Woermann, who at the time of testifying was one of the highest salaried engineers employed by the United States Government, in referring to Parry's Exhibit 2, said: "the hydraulic elements which affect the volumes of discharge and elevation of the water surface are so indeterminate that it is impossible to determine the flood with any degree of accuracy." (Abst., 1085.) These floods passed very rapidly and have little, if any, significance on the problem of navigability. (Abst., 1086.)

One factor Cooley took into account was alleged deforestation above the Riverside gauge. As to the extent of

this he was in error and the Court of Appeals in its opinion accepted his error as a fact. He admitted that he had made no investigation to ascertain the fact. He said that one-half to one-third of the river basin was originally wooded area, of which 25 per cent had been removed. The original Government township maps of the DesPlaines Basin show that not to exceed 25 per cent of its area was wooded, and a large part of that wooded area still remains. (Abst., 1053-1054.) Further, Cooley did not consider the contributions to the flow of the river by sewage and drainage from the towns upon the upper DesPlaines, all of which discharge their run off into the DesPlaines (Abst., 700-701), and country drainage from areas which before inhabitation never discharged water into the river. (Abst., 1056.)

Cooley did not attempt to gauge the hydraulic effects of variations in width and declivities, and there is no authority in any existing profiles of actual soundings of the river, for the depths which he testified existed at the several volumes of flow.

Cooley also attempted to establish depths in a state of nature by inference from the low-water line of 1883. He used a map, "Cooley's Exhibit 2," purporting to depict the river, in profile, from Joliet to its mouth, and to show the three shallowest points at 2.6 feet, 2.2 feet and 1.25 feet. In 1883 the DesPlaines was not in a state of nature. Cooley contends that it was depleted by various artificial works which he enumerates. As a matter of fact the flow was materially increased beyond that which was maintained in a state of nature, by the contributions of the Illinois and Michigan Canal.

Depths shown in a profile indicate nothing as to other depths in the same cross section, except that there is no greater depth. Profiles depict the thalweg of the stream,

or line of greatest depth. They do not indicate a boatable depth, and take no account of boulders and other obstructions, or the sinuosities of the thalweg. These facts were overlooked by the Court of Appeals when it referred to depths of the river. (Abst., 1085.)

Point XIV.

ERRORS OF THE COURT OF APPEALS AS TO THE RIVERSIDE GAUGE. THE READINGS OF THAT GAUGE CLEARLY SHOWED, AS WAS POINTED OUT BY THE SUPREME COURT OF ILLINOIS, THAT THE DESPLAINES RIVER WAS NOT ONLY NOT NAVIGABLE, BUT THAT DURING THE SEASON OF NAVIGATION IT WAS FOR A CONSIDERABLE PORTION OF THE TIME PRACTICALLY DRY.

There appears in the opinion of the Court of Appeals (256 Fed., 795-796) a reference to the gauge record kept at Riverside, and to the conditions which prevailed at various stages of water shown by that gauge. We think no one reading it could fail to be misled, as that Court evidently was misled, as to the actual fact. The natural impression is that the Court was speaking of conditions now existing, when, in fact, all were conditions which Mr. Cooley, the witness upon whose testimony these findings were predicated, thought would have existed in a state of nature—had there been no drainage, deforestation or diversion of water from the river. Cooley was asked to consider "this divide in a state of nature, based upon the computation and examination of the volumes of water in the DesPlaines River and the topography of the Continental Divide, and then to say at what elevation on the Riverside gauge the water would have flowed over the Continental Divide." (Abst., 581.) As we ~~shall~~ have shown hereafter the height of the Continental Divide was a mere assumption.

Whatever it was, no boat has passed over it since 182
and that boat was a canoe in time of flood. The River
side gauge readings, to which the Court refers, but th
significance of which it clearly misunderstood, are amon
the best proofs that the stream in a state of nature wa
not navigable.

The gauge was established by Cooley himself in 188
for the purpose of measuring the amount of water in th
river. In order to a proper understanding of the read
ings of this gauge, it must be borne in mind that when i
is said that the gauge registered a certain number of fee
say for instance, 12.4 that does not mean that ther
would be that depth in the river. The measurements wer
not from the bed of the river, but from Chicago datum
The gauge was set in a pool where the water would stan
around it, even if there was no flow in the river. (Abst
2744.) *Until the gauge reads* 11.4 *feet there is no dis
charge into the DesPlaines River.* (Abst., 689-2744-5.
Therefore, when any depths are mentioned above 11.
the actual discharge into the river is the difference be
tween that depth and 11.4. At and below a reading o
11.4 feet the river, except in pools, would be dry, so tha
one could walk across it without wetting the feet. (Abst
2745.)

The real significance of these gauge readings appear
in an analysis, and table, prepared by Mr. Woerman, th
accuracy of which is not challenged (Abst., 1939, 1947
and from which it appears that in every year from 188
to 1910 where the gauge readings are complete, there wer
from 24 to 213 days *when there was no discharge whatev*
in the river, and it further appears that there were
each year from 120 *to* 300 *additional days* when there wa
a six-inch depth or less.

Cooley testified that, according to these gauge rea

ings, the water would have flowed over the divide on an average of over seventy-three days a year, permitting boats drawing 15 inches of water to pass from the Chicago River into the DesPlaines. The first difficulty with this statement is that it is predicated upon Cooley's purely theoretical assumption of what the elevation of the divide was in a state of nature. Next, that the average flow throughout twenty-four years, was of no consequence because, according to Cooley and other witnesses, the river was subject to great floods, quickly receding, and at other times was practically dry, the dry season being summer, which was the natural period for navigation.

Cooley's table of average days of certain depths (Abst., 590, 961) has no value on the question of navigability, because it covers the entire year, and not the navigation season from April 1st to December 1st; and further the table takes no account of whether the days are consecutive or not. (Abst., 1066.)

For instance, the table shows 65 days in 1887 when the gauge reading was 13.8 or higher, but those days were scattered through several months. The period of 13.8, or over, began on January 23rd and continued until March 21st. Then the water was lower than 13.8 during the remainder of the year until December 8th, when there were six days with a reading of 13.8 or over. Then it was below 13.8 until December 20th, and it continued so for 5 days, so that all the days when it was 13.8 or over were outside of the season of navigation.

Cooley's table represents that in 1887 there were 88 days when the water stood at or above a reading of 13 feet at Riverside. This period began January 23rd and continued to March 25th. During the remainder of the year it was lower than 13.0 until December 7th, after which for the rest of that month it was 13.0 or higher,

so that all the days of 13.0, or higher, were outside t navigation season, except April 4th, when the reading w a trifle over 13.0.

On Cooley's table, 1887 is accredited with 2 days in which the reading was 11.85 or higher. 106 these days occcurred between January 23rd and Ma 8th. From May 8th to July 17th there were 69 days whe the reading was below 11.85. From July 17th to Augu 4th there were 18 days of 11.85 or over, followed by ni days with a reading below 11.85. From August 14th September 1st (19 days) it stood above 11.85. Then fo 3 days it was below 11.85, and then from September 4 to the end of the year (118 days) above 11.85. Fro January 21st to 22nd and from June 15th to July 17t (54 days) the gauge showed no discharge—being belo 11.4.

All of the 62 days the gauge showed for 190 with a reading of 13.0 or over, occurred betwee February 29th and April 28th, inclusive. In 1904 ther were 158 days when the gauge showed no flo at all, as follows: January, 19 days; June, 22 days July, 30 days; August, 20 days; September, 26 days October, 8 days; November, 8 days; December, 25 days During 74 additional days the gauge showed less tha 6 inches of water at Riverside: January, 4 days; Feb ruary, 2 days; June, 7 days; August 8 days; September 2 days; October, 23 days; November, 22 days, and De cember, 6 days.

When the gauge showed no water passing Riverside ordinarily there would be no flow below Riverside, unti the mouth of the Dupage River, from which there migh be a flow of from 20 to 50 feet per second for a shor period, due to rains.

Point XV.

Errors of the Court of Appeals as to changes in the river.

The Court of Appeals (256 Fed., 796) refers to "changes in DesPlaines River." What follows is practically the testimony of the witness Lyman E. Cooley, which is demonstrably full of errors in essential particulars. Its purport was that the volume of the river as it was in a state of nature, has been materially reduced by various causes. This was to overcome the obvious fact that it is not now, and has not in the memory of man, been capable of any sort of navigation.

The Court of Appeals, following Cooley, find the "first change of significance was due to the construction of the Illinois and Michigan Canal in 1848." The fact was established that below Joliet in the portion of the river where appellant's dam was being erected, the volume of the river was very materially increased by the opening of the canal.

The value to be attached to Cooley's assumption of depletion of the river by the construction of the Illinois and Michigan Canal, is indicated by his lack of knowledge of certain vital facts. He knew how much water was contributed from Lake Michigan to the DesPlaines, but he did not know how much water was needed for the canal where it left the river at Joliet. Manifestly so much of the contribution from Lake Michigan as did not go down the canal, passed down the channel of the DesPlaines below Joliet, over the site of the proposed dam, and into the Illinois River. Cooley knew that the contributions from Lake Michigan by the Deep Cut through the canal to the DesPlaines reached from 15,000 to 30,000 cubic feet per minute. (Abst., 706-707.) He did not know the

amount contributed by the Bridgeport lift wheel, which was a very considerable amount. (Abst., 704-2753.) (The Court of Appeals mentions this Bridgeport pump as one of the "interferences" with the natural volume of the river, evidently supposing that it pumped water out of DesPlaines. As a matter of fact it pumped water out of the Chicago River and into the canal whence it was discharged into the DesPlaines.) The amount needed for the canal below Joliet is variously stated from 2,800 cubic feet (Abst., 1047) per minute to 9,000 cubic feet per minute as a maximum. (Abst., 2753.) Therefore the volume of the DesPlaines River below must have been largely increased by the canal and the pumping works. Cooley did not know how much water the canal took out below Joliet, or what proportion of the waters contributed by the Deep Cut went past the mouth of the canal at Joliet, and thence down the DesPlaines, and what part was diverted by the canal (Abst., 707), and he did not know that five mills below the point where the canal left the river at Joliet, possessed rights to the uses of certain portions of the water that could not be diverted for use of the canal. (Abst., 2903-2904, 2906-2907, 2925.) One was Haven's Mill at Joliet, below the mouth of the canal, and four others were on the level of the canal within the City of Joliet, all of which operated by water drawn from the canal and discharged back into the DesPlaines. (Abst., 704-706.)

In *Druly* v. *Adams,* 102 Ill., 177, which was litigation concerning the right to use the water at the Haven mill, it appeared that there was a surplus contributed to the DesPlaines by the canal of 25,000 cubic feet per minute not needed for navigation upon the canal. (Abst., 2903.)

In certain works of which Cooley was the author, written sometime before the giving of his testimony, he stated

that the water in the river below Joliet was, for the most part, contributed by Lake Michigan, by means of the canal.

Point XVI.

THE ACT OF THE GENERAL ASSEMBLY OF THE STATE OF ILLINOIS PROVIDING FOR THE CONSTRUCTION OF THE SANITARY DISTRICT CHANNEL WAS EXPRESSLY FRAMED TO PRESERVE AND PROTECT THE WATER POWER RIGHTS OF RIPARIAN OWNERS ALONG THE DESPLAINES.

We refer to this fact because in the briefs filed in the Court of Appeals, there was an attempt to inject into the case an element which had no proper place there. We cannot assume that the same attempt will not be made here.

Counsel for the Government sought to create the impression that Mr. Munroe undertook to acquire a water power where none had before existed, by taking advantage of the expenditure of some $50,000,000, or more, on the part of the Sanitary District to increase the volume of water turned into the DesPlaines River. Two facts are important in connection with this claim: first, that a water power existed and was availed of by a dam erected in 1833 at the site of the proposed dam; second, that the Statute of Illinois, which permitted the creation of the Sanitary District channel, expressly provided for the protection of the private rights of the owners of all water powers upon the river.

Several water power dams at points below the junction of the Sanitary District with the DesPlaines existed from the earliest days of settlement. A summary of them is given at page 2084 of the abstract. It was, of course, known to the legislature when they passed the Act creating the Sanitary District, that these water powers

would be greatly increased and rendered more val
by the addition of the waters of Lake Michigan,
preserve them to the owners, Section 7 of that Act
vised Statutes of Illinois, 1917, p. 418, provided a
lows:

> "In no case shall said Board (Board of Tru
> of the Sanitary District) have any power to co
> water after it passes beyond its own channel, w
> ways, races or structures into a river or na
> waterway or channel, or water power or doc
> uated on such river, or natural waterway
> channel."

The water power in question here is far below the
where the water passed from the channel of the Sani
District.

This purpose to preserve to the private owner
water-power rights was further emphasized and effe
by Section 23 of that Act, in which appears the follow

> "This Act shall not be construed to authorize
> injury or destruction of existing water po
> rights."

The legislature must have intended that the exis
water powers which would become valuable in the n
ern sense should be preserved and protected. The
guage could refer to nothing else. And indeed it
well known fact that the preservation of these w
powers was debated, and thoroughly considered by
legislature, and that the provisions of the statute
ferred to were incorporated for the express purpos
protecting them. (pp. 2020-2023.)

The evidence shows, that Mr. Munroe had perfected
financial arrangements for constructing the dam
power house before he had any negotiations with
Economy Light & Power Company. (p. 3182.) Ass
ated with him in the enterprise was Frank G. Loga
well known capitalist.

Counsel for the Government also suggested in their brief in the Court of Appeals, that Mr. Munroe obtained from the State whatever rights it might have had in connection with the water power at Dresden Heights through what they characterized as "frugal arrangements" with the trustees of the Illinois and Michigan Canal.

The decision of the Supreme Court in *State* v. *Economy Light & Power Company* makes it clear that the State had no rights in that connection, and that its ownership was only of the canal and its tow banks, and a very few acres of worthless lands that it had never been able to sell, and which Munroe bought at the price at which it had been carried for years on the books of the trustees. These contracts have been declared valid by the opinion of the Supreme Court of Illinois just referred to.

Point XVII.

Testimony of historical experts, and publications offered in evidence.

Charles W. Alvord, Reuben Gold Thwaites and Andrew McLaughlin, historians, were called by appellee to draw conclusions, from narratives, translations, and compilations which Alvord had collected. We do not deem it necessary to lengthen this brief by an analysis of their evidence. Those conclusions are of little value in determining the present issue; first, because the application of the Act of March 3, 1899, to the DesPlaines River does not depend upon such use as was made of it in primitive days; second because they testified to no instances of the use of the river which are not referred to in the opinion of the Court, which instances we have already discussed; and, lastly, because it is the province of the court and not of historical experts, to determine what inferences may properly be drawn from the evidence.

Thwaites and McLaughlin confined themselves to excerpts collected by Alvord, and Thwaites declined to be examined as to other matters. When he was asked by counsel for defendant if there was any significance in the fact that horses and wagons were used for the whole length of the road portage, from Lake Michigan to the Illinois, at a period before the settlement of the country, for the purpose of transporting goods and merchandise, Thwaites replied, "The Government did me the honor to ask my opinion relative to certain historical incidents. That is not among them, and I have not made a study of this wagon route."

He further said:

> "My conclusion was based on the evidence which the Government submitted to me for my opinion."

McLaughlin said: "I made no very satisfactory study from the sources of the early travels in this country, the early explorers" (Abst., 337), and counsel for the Government objected to cross-examination of him as to excerpts which he had not examined. (Abst., 339.)

It is also to be observed that Thwaites' attention was called to but part of the evidence submitted by Alvord, and McLaughlin's to still less. The conclusions of Alvord and Thwaites are substantially the same. McLaughlin's is somewhat more conservative. Alvord said that it was his "opinion that from the latter part of the seventeenth century, through the first third of the nineteenth century, men engaged in the fur trade passed up and down the Chicago and DesPlaines Rivers in canoes and flat boats very regularly. * * * That the most active trade carried on on the two rivers falls between the period of 1783 and 1825, or there abouts; that the traders found a very easy passageway by means of these rivers in the early spring; that during the time of drought, such as occurred in the summer or fall, the

passage was hard, that even then they forced their boats through the waterway, often being obliged, however, to carry their packages around the shoals and rapids."

Thwaites added to Alvord's conclusion the fact that the carriage varied greatly in length from season to season and from year to year, according to the stage of the water.

McLaughlin's opinion from such of the excerpts as were submitted to him, was that the river was used from the time of Charlevoix to 1825 with "apparently considerable frequency" as a route of trade and commerce, "with considerable ease" at some seasons, and that "it seemed to present some difficulty" at certain seasons. (Abst., 327.)

We submit that the records to which we have heretofore referred do not justify the conclusion that the D. Plaines River was used in the fur trade "very regularly," "quite regularly" or "with apparently considerable frequency" during the period mentioned.

Two experts on historical matters were called by the defendant. Any person who may study their testimony in this case carefully, will be convinced of their ability and equipment for the work.

Dr. Quaife, after the death of Reuben Gold Thwaites, and since the taking of testimony in this case, became Dr. Thwaites' successor as superintendent and secretary of the Wisconsin State Historical Society, a position which he now holds. He edited the four volume Diary of President Polk, wrote a monograph on the "Doctrine of Nonintervention of Slavery in the Territories," contributed articles to the Cyclopedia of American Government, edited by Professor McLaughlin and Albert Bushnell Hart, and at the time of testifying, and for several months prior thereto, had been engaged in pre-

paring a history of Fort Dearborn and early Chicago, for which the Chicago Historical Society placed at his disposal a large mass of material connected with the early history of Chicago, which had been reserved by it for this work and had not been accessible to scholars generally. In connection with that study he acquired a large knowledge of the early history of Chicago and the surrounding region, and he was familiar with a large majority of the authorities referred to by the Government's witnesses before his attention was called to this case. Since testifying, he has produced the work on which he was then engaged "Chicago and the Old Northwest," which is a standard and authoritative work.

It is unnecessary to burden the court with the details of Dr. Quaife's testimony. He pointed out that certain translations used by Alvord were incorrect, or wholly omitted important passages. He also, in connection with the narratives and publications used by Alvord, pointed out numerous statements contained in them, parts of them vital to the issue, which Alvord had not mentioned. The character of his work was also indicated by his demonstration that Ogden's Letters, to which Dr. Thwaites gave authority by including them in his "Early Western Travels," were almost entirely plagiarisms, and that Ogden never made the journeys he described. These are but instances to show the character of Dr. Quaif's work.

The testimony of Mr. Lee, called by the defendant, was particularly devoted to showing the history of the development of trade and settlement in Chicago and the Illinois country, with a view to demonstrating that those conditions made the conclusions of the Government's expert witnesses impossible of acceptance. Without reference to this case, and before his attention was called to it, he had written a work entitled "Transportation as a

ictor in the Development of Illinois." One of the con-
usions to which he came in that work, was that Chicago
as a stimulus for the development of but a small area of
linois prior to 1850, due to the fact that connections
etween it and the interior were not sufficient to make
evelopment possible. The work treated, among other
hings, of the question of transportation in upper
llinois prior to 1860. All this was done, and his con-
lusions arrived at, without reference to this litigation.
Counsel for the Economy Light & Power Company were
referred to this paper by Dr. Jameson, head of the Edu-
cational Department of the Carnegie Institute at Wash-
ington, and this resulted in his appearance as a witness
for appellant. (Abst., 1090-1093.) Mr. Lee furnished
much evidence as to the course and amount of the fur
trade, and the conditions as to population and trade
during the periods in question.

There was introduced a mass of publications, gazeteers and compilations intended to show that the Chicago, DesPlaines and Illinois constitute a route of travel. They have to do with primitive times, and for the most part were demonstrated to have been written by persons who were never in the vicinity of the river. Statements by such persons were copied by other writers and these latter were introduced as though they were original sources. The most that can be said for this class of evidence is that it shows that in early days there was a Lake Michigan-Illinois River route, of which at times of flood, and under precarious conditions, parts of the DesPlaines were at times used by small boats in presettlement days, but none showed it to be navigable for purpose of useful commerce.

Point XVIII.

THE EFFECT OF THE DECISION THAT THE DESPLAINES RIVER IS NAVIGABLE IS NOT CONFINED TO APPELLANT. IF AFFIRMED IT WILL NOT ONLY SERIOUSLY AFFECT VAST PRIVATE INTERESTS, BUT THE RIGHT TO MAINTAIN VERY IMPORTANT EXISTING STRUCTURES, NECESSARY FOR THE CONVENIENCE OF THE PUBLIC.

It is proper to call the court's attention to the far-reaching consequences which must logically follow from the decision of lower courts, if they shall be affirmed. The effect of the judgment appealed from will not be merely that the Economy Light & Power Company may not complete its dam at Dresden Heights. If the Des Plaines is a navigable stream, then the United States has the power to, and if it ever improves the river it must, cause the destruction or modification of thirteen permanent steel bridges between Lockport and the mouth of the river, some of which are the important highway bridges between different parts of Joliet, and two of which are great railroad bridges, all without compensation to the owners, and all to the great inconvenience of the public. It will also have the power to cause the removal of a costly power dam at Joliet, belonging to the State. No permit of the United States was ever asked or obtained for any of these structures. The history of the river justified the builders of them in believing that they had as unqualified a right to build in the bed of this stream as they would have had on any upland held in fee, respecting only the rights of other owners above and below them. This is true, (1) because not only was there no commerce on the river, but there had never been any upon it from the time of the earliest settlement upon its banks, and (2) because the United States had from the earliest days officially classified it as an unnavigable stream. In this proceeding there is, therefore, involved the right

of the United States to require the removal of all structures by riparian owners, by municipalities and by the State, all of which were permitted to be built by the United States, upon an accepted classification of the river, which has been rejected by the lower courts. And this not in the interest of navigation, for restraining the erection of this dam would have no effect on navigation. The existing obstructions absolutely preclude the possibility of such navigation, even if the stream were otherwise capable of it, which it is not.

Conclusion.

Regardless of the ultimate result of this litigation, a great and irrecoverable loss has been sustained by appellant because of the actions brought against it by the State and the United States. It has not only lost the use of its investment, but also the profit which would have arisen from the production of power. But the loss is not alone appellant's. For more than ten years, because of this litigation, power of great value to the public, has literally gone to waste. The work which it would have done, has been done by the needless use of coal and other fuel supplies. And while this waste has been going on, expert witnesses have been solemnly engaged for months in preparing figures, maps and other testimony to establish theoretically by laboratory methods, that a stream whose low water discharge "could be taken through a six-inch pipe," was a navigable waterway of the United States. Possibly the most exhaustive study ever given to historical sources concerning any one small field, has been devoted to an effort to prove, by historical experts, that more than a century ago adventurers and explorers somehow managed to get from Chicago to the Illinois River, and that at times when for brief periods in spring and fall, the DesPlaines River was swollen out

of its banks, they were able, with their canoes, to make some precarious use of the DesPlaines River. And while the engineers figured, and the historians drew deductions, the river rushed on, unnavigated and unnavigable. If the decision below is affirmed, the waste and loss of the last ten years will continue indefinitely. Judging the future by the past, and giving just weight to existing conditions, it is probable that the communities which could be served by this power, will, in the language of the court in *Valentine* v. *Berrien Springs Water Co., supra,* "lose the greatest benefits which nature has placed within their reach," for years to come, if not for all time, because of a decree which protects no interest, and benefits no one. If the river ever is made capable of navigation appellant's dam, according to the War Department engineers, will be an aid, and not a hindrance, to the enterprise.

We submit that in the light of this record, the decree should be reversed.

Respectfully submitted,

FRANK H. SCOTT,
Attorney for Appellant.

AFFIDAVIT AS TO AMOUNT IN CONTROVERSY.

United States of America. } ss.

THE SUPREME COURT OF THE UNITED STATES,

October Term, A. D. 1919.

Economy Light & Power Company, *Appellant*,
vs.
The United States of America, *Appellee*. } No. 365.

United States of America,
State of Illinois,
County of Cook. } ss.

CHARLES A. MUNROE, being duly sworn, upon oath, deposes and says, that he is president of the appellant and is personally acquainted with the facts hereinafter stated; that the above entitled cause involves the right of appellant to construct and maintain a dam in the DesPlaines River in the State of Illinois; that the matter in controversy exceeds one thousand dollars ($1,000) besides costs; that said dam has been partially constructed by appellant; that by the decree of the District Court appellant is enjoined from any further construction of said dam and from maintaining said dam in said river, and is required to remove so much of said dam as has been already constructed; that appellant has expended to date in the construction of said dam upwards of two hundred thousand dollars ($200,000); that it has issued bonds to the amount of two million dollars ($2,000,000) and has sold the same for the purpose of procuring money to pay for the construction of said dam; that said bonds are secured upon said dam as

built and as to be built and upon the power site in co
nection with said dam; and that the value of the right
maintain said dam is far in excess of one thousand do
lars ($1,000).

And further affiant sayeth not.

(Signed) CHARLES F. MUNROE.

Subscribed and sworn to before me this 10th day
March, A. D. 1920.

(Signed) LELAND K. NEEVES,

(SEAL) *Notary Public,*
Cook County, Il

STIPULATION AS TO AMOUNT IN CONTROVERSY.

United States of America } ss.

THE SUPREME COURT OF THE UNITED STATES,

October Term, A. D. 1919.

Economy Light & Power Company, *Appellant*,
vs.
The United States of America, *Appellee.*
} No. 365.

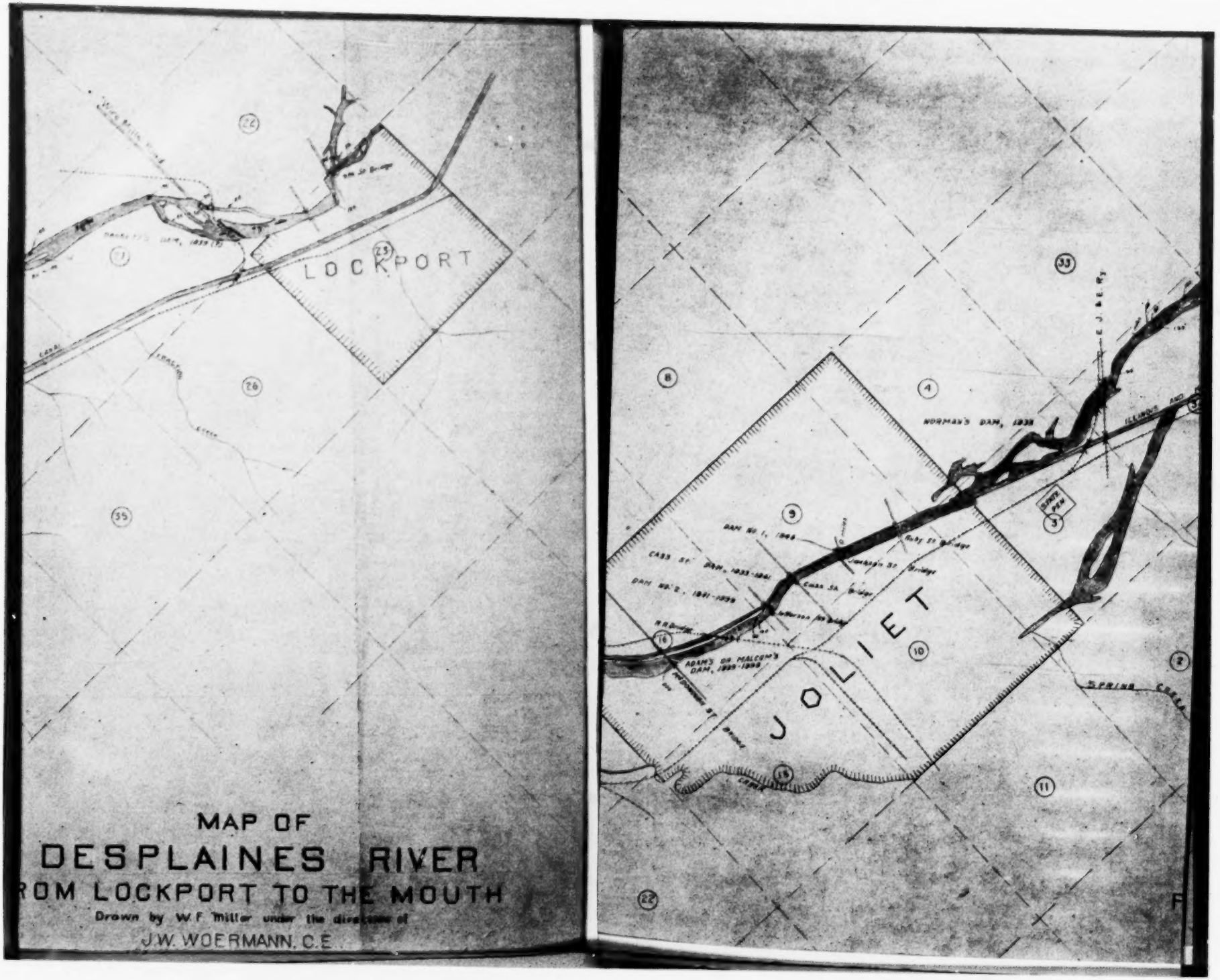
STIPULATION.

It is hereby stipulated by and between the parties hereto by their respective solicitors, that the matter in controversy in the above entitled cause exceeds one thousand dollars ($1,000) besides costs and exclusive of all costs and interest; and that this stipulation and the affidavit of Charles A. Munroe dated March 10, 1920, to the effect that the matter in controversy herein exceeds one thousand dollars ($1,000) besides costs and exclusive of all costs and interest, may be filed with the clerk of this court, and made a part of the record in said cause.

Dated March 12, 1920.

(Signed) FRANK H. SCOTT,
Solicitor for Appellant.

(Signed) ALEX. C. KING, JR.,
Solicitor for the United States of America, Appellee.


LOCKPORT
JOLIET
NORMAN'S DAM, 1838
CASS ST. DAM, 1833-1864
DAM NO. 2, 1841-1939
DAM NO. 1, 1845
ADAM'S OR MALCOM'S DAM, 1833-1898
SPRING CREEK
MAP OF
DESPLAINES RIVER
ROM LOCKPORT TO THE MOUTH
Drown by W.F. Miller under the direction of
J.W. WOERMANN, C.E.

19
17
20
PATTERSON
ATCHISON, TOPEKA AND SANTA FE
CHICAGO AND ALTON RAILROAD
29
21

35
21
34
1
34
2
1
WILLSDALE
13

CHANNAHON

ILLINOIS
RIVER
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MORGAN
31
ILLINOIS
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In the Supreme Court of the United States.

OCTOBER TERM, 1920.

ECONOMY LIGHT & POWER COMPANY, appellant, v. THE UNITED STATES OF AMERICA. } No. 104.

APPEAL FROM THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SEVENTH CIRCUIT.

BRIEF FOR THE UNITED STATES.

This is an appeal from the judgment of the Circuit Court of Appeals for the Seventh Circuit affirming a decree enjoining appellant from continuing the construction of a dam in and across the Desplaines River at Dresden Heights at a point just north of where it joins the Kankakee River, forming the Illinois River.

STATUTE INVOLVED.

The bill was filed upon the ground that the dam was in a navigable river of the United States and was being constructed without compliance with

section 9 of the river and harbor act of March 3, 1899 (30 Stat. c. 425, pp. 1121, 1151), which is as follows:

> That it shall not be lawful to construct or commence the construction of any bridge, dam, dike, or causeway over or in any port, roadstead, haven, harbor, canal, navigable river, or other navigable water of the United States until the consent of Congress to the building of such structures shall have been obtained and until the plans for the same shall have been submitted to and approved by the Chief of Engineers and by the Secretary of War: *Provided*, That such structures may be built under authority of the legislature of a State across rivers and other waterways the navigable portions of which lie wholly within the limits of a single State, provided the location and plans thereof are submitted to and approved by the Chief of Engineers and by the Secretary of War before construction is commenced: *And provided further*, That when plans for any bridge or other structure have been approved by the Chief of Engineers and by the Secretary of War, it shall not be lawful to deviate from such plans either before or after completion of the structure unless the modification of said plans has previously been submitted to and received the approval of the Chief of Engineers and of the Secretary of War.

RULINGS OF THE COURT BELOW.

Both the District Court and the Circuit Court of Appeals concurred in finding that the river in question was a navigable river, and the injunction was granted upon this ground.

The Government does not contend that either at the time the suit was brought or at the time the building of the dam was commenced the river was actually being used for navigation. The contention, however, is that it was and is a river of navigable capacity, and in connection with other navigable waters constitutes a highway of interstate commerce, and was therefore within the jurisdiction of Congress. It had in the early history of the country been used for such navigation as was, at that time, common upon rivers. On account of changes in the means of transportation, and for other reasons that will appear later, the actual use of the river for this purpose had for the time being ceased. The Court of Appeals, in its opinion, sums up the matter thus:

> From the latter part of the seventeenth century through the first third of the nineteenth century men engaged in the fur trade passed up and down the Chicago and Desplaines Rivers in canoes and flat boats very regularly. Fourteen specific instances of the use of the Desplaines down to the year 1830 are shown in the evidence, as follows: Trips to Chicago: Joliet and Marquette, 1673; Perrault, 1783; Joutel, 1688;

Hubbard, 1819; Ebenezer Child, 1821; Tonty, 1680; La Salle, 1681; Fonda, 1825. Trips from Chicago: Father Membre, 1682; St. Cosme, 1698; Hubbard, 1818; Marquette, 1674; Howard, 1790; Furman, 1830. Very many other trips made during the same period, not so well authenticated, are disclosed in the evidence, and numerous historical references to the Chicago-Illinois route. No doubt other instances of its use may properly be inferred. It was employed by the American Fur Company down to 1825, and then abandoned for other routes. The trial judge found, as the record shows, that there is no evidence of actual navigation within the memory of living men, and therefore there would be no present interference with navigation by the building of the proposed dam. But it was held that the evidence shows the Desplaines a navigable water of the United States, preserved as such by the legislation of Congress.

In the early days the fur trade was a leading branch of commerce in the western world, and this trade was one of the characteristics of the Desplaines River. Large quantities of supplies of various kinds needed by the settlers in a new country were also transported over the Desplaines during the same period in boats of the size and character then commonly used in river commerce, this transportation being carried on between Chicago, St. Louis, and other points. Canoes of several tons burden were used; some were 35 feet long by 6 feet

wide, some 33 feet long by 4½ feet wide, worked by paddles and occasionally a sail, and had a crew of eight men, carrying as much as 6,000 pounds of freight as well as 1,000 pounds of provisions. The pirogues were manned by six or seven oars; the batteaux were larger than the pirogues; the Durham boats were heavy freight craft, 60 feet long, 8 feet wide, 2 feet deep, with a capacity of 15 tons, drawing 20 inches of water.

Commerce of this character existed until about the year 1825. After that year the fur trade having receded to interior portions of Illinois was reached more generally by horses. After the year 1848, when the Illinois and Michigan Canal was constructed, commerce that had formerly been carried on the Desplaines River was carried on the canal. Radical changes had taken place in the condition of the river as heretofore shown, which resulted in a diminution of the flow in the river, and this was one of the causes for the nonuse of the river. (256 Fed. Rep., p. 797.)

The court then stated that, beginning with the year 1835, several dams had been constructed across this river, which, of course, obstructed the commerce that had been formerly carried on, but that, prior to 1889, all of them had been abandoned except one, which was the State Dam No. 1 at Joliet. Upon these findings of fact the court held that the Desplaines River was "a navigable

stream of the United States, or one capable of bearing interstate commerce via the Illinois and Mississippi, at the time of the passage of the acts of 1890 and 1899."

STATEMENT OF FACTS.

As the pivotal point involved in this case is the navigability of the Desplaines River, some salient facts may be referred to here before any attempt is made to review the evidence.

A statement of the physical characteristics of the river will appear later, but here it may be noted that the U. S. Government caused a meander survey to be made of the river in 1821; a certified copy of the U. S. surveyor's notes in evidence (R. pp. 2301-2344) refers to the point on the river where it connects with Portage Lake as "head of navigation." Portage Lake was the connecting link between the Chicago River and the Desplaines, at times with and at times without portages. Here we only pause to note that this commerce was referred to by R. Graham and Joseph Philips in a report dated April 4th, 1819, to the Honorable J. C. Calhoun, Secretary of War, which, in referring to the Chicago River, the Desplaines, and Portage Lake, says: "Between the heads of these two arms" (Chicago River and Portage Lake) "is also a gutter which is dry in the dry seasons of summer and fall and full of water in the spring, and when thus filled with water the

boats of 6 or 8 tons engaged in the Mackinaw and Mississippi trade run through backwards and forwards so as to make no portage between Mackinaw and the Mississippi River." *At the time he made this report Joseph Philips was Chief Justice of the Illinois Supreme Court.*

The character and extent of the actual navigation being carried on at the time of the survey by the American Fur Company with brigade of 12 and 13 boats navigating from Mackinac Island to points along the Illinois River over the Chicago, Desplaines, Illinois route will appear in its proper order.

Counsel for appellant stresses his claim that there is no evidence of navigation of the Desplaines by living witnesses.

The evidence discloses that from 1848 the Desplaines was paralleled by the Illinois and Michigan Canal, giving an obviously superior means of navigation. Appellant's brief, page 16, calls attention to the existence of a dam in 1826 at the site of the proposed dam, and the map attached to it also shows three dams erected in 1833, one in 1835, two in 1839, one in 1841, and one in 1846, and it is also in evidence that the constuction of the Illinois-Michigan Canal was begun in 1836. (R. 772.) The obstructions noted prevented practical navigation of the Desplaines subsequent to 1833, which was therefore 77 years prior to the taking of testimony in this case, and this fact made the possibility

of any evidence of practical navigation of the river within " living memory " exceedingly remote, although one witness (Reed), 86 years of age when the testimony was taken in this case, did testify as to such use, apparently in 1831. (R. Vol. III, p. 2102.)

Counsel attempts to say that the War Department " assured appellant's predecessor that the Desplaines River was not a navigable stream." While this is not material to the issue, we here place before the court the facts showing that no such assurance was ever given or asked or considered for a moment.

In the first place, attention is again called to the reports of Long and Graham and Philips, showing actual contemporaneous navigation in 1819.

In 1867 the War Department caused a survey of the Illinois River to be made under Major General J. H. Wilson, whose first report is dated May 13th of that year. The work contains a survey with plans and estimates of costs for a navigable waterway 14 feet deep from Lockport, Illinois, by way of the Desplaines and Illinois Rivers to the mouth of said Illinois River. The report recommends the use of the Desplaines River from the head of Lake Joliet to the mouth of the river, and says, " It must be remembered that this river is not the exclusive property of those living on its banks. It forms already an important link in a network of river navigation extending with its

arious branches through seventeen States of the Union." (R. 652.)

The report of Assistant Engineer F. C. Doran, January 9th, 1875, also recommends the improvement of the river from Joliet to La Salle; likewise Major Benyaurd's report, dated September 2, 1882, the Comstock Board of Engineers, January 10th, 1887; the report of Captain W. L. Marshall, February 28th, 1890; and the report of the Ernst Board, December 12th, 1905. An act of Congress approved June 13th, 1902, contained an appropriation for "making surveys * * * as may be required to determine the feasibility of * * * and to prepare estimates of the cost of a navigable waterway 14 feet in depth from Lockport, Illinois, by way of Desplaines and Illinois Rivers to the mouth of said rivers." * * * (R. 654–8.)

These references are here made for the purpose of showing that the actual navigation and navigability of the Desplaines River was recognized by the Government in an official report as early as 1819 and that the General Government has had in contemplation the improvement of the river for purposes of navigation since 1867.

It was in the light of the information afforded by the Chief of Engineers of the War Department in 1867 and 1887 that the Illinois Legislature in 1889 undertook the construction of a Sanitary and Ship Canal designed to create a deep waterway from Lake Michigan to the Mississippi River. The Illi-

nois Legislature concurrently, with the passage of the act of 1889, providing for the construction of the canal passed a joint resolution in which it stated that it was the policy of the State to procure construction of a waterway of the greatest practical depth and usefulness and for navigation from Lake Michigan via the Desplaines and Illinois Rivers to the Mississippi River, and requested the United States to aid in the construction of a channel not less than 160 feet wide and 22 feet deep with such a grade as to give a velocity of 3 miles per hour from Lake Michigan at Chicago to Lake Joliet, a pool of the Desplaines River immediately below Joliet, and to project a channel of similar capacity of not less than 14 feet deep from Lake Joliet to La Salle. (R. 2392; Ill. Session Laws 1889, p. 376.)

Thereupon the State of Illinois constructed the Sanitary and Ship Canal from the mouth of the Chicago River to Dam No. 1 in Joliet where it emptied into the Desplaines River and made a junction with the Desplaines and the Illinois and Michigan Canal. The waters of Lake Michigan were turned into the Desplaines January 17th, 1900, thereby adding to the Desplaines a flow of 300,000 cubic feet per minute. That it was the policy of the State to develop the water power created is shown by sections 5 and 6 of the act of May 14, 1903, empowering the Sanitary District to develop, use, and sell the water power created above the upper basin of the Illinois and Michigan Canal; the water

power at Joliet being already developed by State Dam No. 1.

There had been, counsel for appellant says, a dam near the confluence of the Desplaines and Kankakee as early as 1826, but had long since been abandoned, as had all the other dams on the Desplaines except State Dam No. 1 at Joliet. Obviously, the water power capable of being developed on the site of the old dam was, prior to the turning in of the waters of Lake Michigan through the Sanitary and Ship Canal, of no importance. The addition of the waters of Lake Michigan, however, create a water power of vast potential value.

There was, moreover, no riparian right in the owners of the land on the left bank of the stream at Dresden Heights (the site of the proposed structure) to dam the stream, for the reason that the Desplaines River was, in a state of nature, a navigable stream and for the further reason that the right bank of the stream was the property of the Illinois and Michigan Canal commissioners, a part of the Illinois State government.

Some circumstances not disclosed by this record brought the value of the water power in question to the attention of Charles A. Munroe, president of the appellant company, and after the waters of Lake Michigan were turned into the Desplaines he evolved a plan to get possession of both sides of the Desplaines River and exploit the water

power created by the expenditure of about $63,000,000 of public money. His first step, taken in the early part of or some time immediately prior to 1904, was to get control of the lands on the left bank of the river belonging to one Griswold, and to obtain flowage rights in some 1,800 acres of the land on the same side. He did not, however, take title to the land at that time, but while Griswold still remained the apparent owner Munroe approached the Illinois and Michigan Canal commissioners for the purpose of obtaining the right to attach a dam to the right bank of the river and to obtain certain other rights.

In a contract dated September 2nd, 1904, the Illinois and Michigan commissioners for the sum of $2,200 gave Griswold the right to construct a dam or other works across the Desplaines or Illinois River, to excavate and deepen the channel, and to flow the 90-foot reserve strip along the bank of the Illinois and Michigan Canal, provided the towpath was not flooded, and to attach the dam to the right bank of the river and left bank of the canal. Certain other rights were given Griswold and he was given permission to use the gravel or other material along the Illinois and Michigan Canal, the property of the State of Illinois, to raise the towpath bank. (Defendant's answer, Exhibit A.)

An indenture of the same date leased a 90-foot strip to Griswold for 20 years for $500 for the entire term. (Defendant's answer, Exhibit B.)

By a third agreement Griswold was given the right to divert the waters of the Kankakee River into the Desplaines through the Kankakee feeder for 20 years for the sum of $150 a year, with right to grantee to cancel any time after five years. (Defendant's Exhibit C.)

In both leases the lessee was given the right of renewal at the expiration of 20 years.

It was through these frugal arrangements that Mr. Munroe claims to have obtained from the State whatever rights it might have in connection with the development of water power at Dresden Heights which had resulted from the expenditure of so many millions of dollars raised by public taxation for the dual purpose of conserving the public health and completing a deep waterway connection between the Lakes and the Gulf of Mexico.

Only one obstacle now stood in the way of his success; that was the navigability of the Desplaines River. The record discloses that Mr. Munroe was a lawyer, and very obviously he would not proceed in the matter without some investigation in regard to his right to put a dam in the river.

At the very threshold of this investigation lay *The Montello,* 20 Wallace 430, in which the control of Congress over public waters was discussed, navigability defined, and the Chicago-Desplaines-Illinois route was stated to be one of the three

great avenues from the St. Lawrence to the Mississippi which were declared to be within the protective terms of the ordinance of 1787. The court had further said, "And independently of the ordinance of 1787 declaring 'navigable waters' leading into the Mississippi and St. Lawrence to be ' common highway ' the true test of the navigability of the stream does not depend on the mode by which commerce is or may be conducted nor the difficulties attending navigation."

No investigation of the legal status of the matter could be entered upon without having it instantly apparent that the Desplaines was in law a navigable stream subject to the jurisdiction of Congress and that no obstruction could be placed in it without the consent of Congress or the legislature and the approval of the plans by the Secretary of War and the Chief of Engineers.

It was in such circumstances that Mr. Munroe approached the local Government engineer at Chicago to obtain some means of bridging the difficulty.

He did not, however, ask the engineer or the War Department for an opinion as to whether the Desplaines River was navigable and within the jurisdiction of Congress, but he and those with him insisted at all times that it was not navigable (R. 2871, 2108–2124, 1934–1938); that they were not seeking a permit and all that they wanted was some assurance that in the view of the War De-

partment their project would not conflict with the plans of the Ernest Board. By this means they attempted to persuade the War Department to enter into some sort of a bargain whereby if they did certain things the Government would "waive any and all objection which it may have to the progress of such water power construction" as proposed in Munroe's letter of March 20, 1906, and its inclosure (*which are not in evidence*). In the letter he stated that "the agents of the water power company in question informally claim to have secured possession of all the land on each bank of the river necessary to allow for the construction of the dam and of its accessories * * * *and they likewise claim that there is no existing State law or United States law which prohibits their legally going ahead with their construction, and that no special law is needed therefor.*" (R. 2872.) Col. Bixby, the local engineer, in his letter dated March 27, 1906, does not attempt to pass upon the question of navigability and deals with the question upon the representation of the water power company that it is not navigable. He recommends "that the Honorable H. M. Snapp and Mr. Charles A. Munroe be informed that the War Department will waive any and all objections which it may have to the progress of such water power dam construction as proposed by Mr. Munroe's letter of March 20, 1906, and its inclosures, provided that he on the part of the power dam owners agrees, etc."

This, however, Robert Shaw Oliver, Assistant Secretary of War, in a letter to Mr. Munroe, dated June 7, 1906, declined to do. He referred to the conditions which Mr. Munroe and his associates were willing to comply with and merely said that if they were complied with they would be "in general harmony with the work of improvement recommended by the board of engineers appointed under authority of the river and harbor act, June 13, 1902, etc., * * * inasmuch, however, as Congress has not yet authorized the improvement of this river, this department does not deem it expendient to take further and definite action in the matter of approving the plans." (R. 2875.)

February 23, 1907, Mr. Isham Randolph, apparently chairman of the Internal Improvement Commission of Illinois, appointed "to investigate the various problems associated with a projected deep waterway from Lake Michigan to the Gulf of Mexico," called on the Secretary with a letter from the governor of Illinois. He represented that the work of the Sanitary District made possible the development of important water power on the Desplaines and Illinois Rivers. The account of this proceeding, which is very meager and begins on page 1935 of the abstract, states that the honorable H. M. Snapp, Mr. J. W. Woermann, and Charles A. Munroe represented the Economy Light & Power Company; Mr. I. Randolph represented the State of Illinois; and Alexander McKenzie, Chief of Engineers, was also present. Mr. Snapp

instantly stated, in reply to Mr. Randolph, that as the General Government had no right either to this property or the water power developed thereby, there could be no determination of the matter by any of the officers of the Government; that as a matter of fact all the property interest in the Desplaines Valley belonged to private individuals. "The stream is not a navigable stream. It is not a navigable stream either in law or in fact."

> Secretary TAFT. How do we get any jurisdiction of it, General McKenzie?
>
> Mr. SNAPP. Let me answer, Mr. Secretary, as a lawyer you undoubtedly have none, and I was going to bring to the attention of the Secretary——
>
> Secretary TAFT. Why do you come here for a permit?

Mr. Snapp then explains they did not come for a permit, but for advice, to be more safe to proceed. Mr. Randolph states that the river is meandered by the surveys and thinks that might make it navigable. Secretary Taft answers that has nothing to do with determining whether the river is navigable. Mr. Taft then says the application—"and it is rather informal than otherwise—is for this department to take no official action which may interfere with the State control of the water power which may be developed in the Desplaines River, etc. * * * The department is not going to take any action and has not taken any action. The advisory step taken at the in-

stance of Mr. Snapp or the persons who intended to put some sort of water-power construction in the Desplaines River was extra official and really was beyond the authority of the Chief of Engineers except as he was accommodating to express an opinion in the interest of explanation. * * * It has merely offered a friendly suggestion with reference to a possible improvement of the river which has not been authorized and which until it is authorized can not be regarded as giving any right to this Government to interfere in the use of the stream. The proposed action of the private owners here would not be in conflict with such a plan. That is an expression of an opinion with reference to existing plans, but not with respect to existing conditions. Therefore, what General McKenzie has done out of the kindness of his heart does not commit this department to any assertion of authority in the matter * * *. It is not that we approve this—it is not that we disapprove it. It is that we have nothing whatever to do with it."

From the above it is seen that the Secretary and the Engineer did not inform appellant that the stream was not navigable, but appellant informed them in regard to the matter. It did not go to the department for light on that question; it insisted that it knew that the stream was not navigable and that it sought no permission from the Government. When inquiry was made by the Illinois attorney general, October 21, 1907, Acting Secretary of

War Shaw replied, October 28, 1907, that "the Desplaines and Illinois Rivers * * * are considered by the War Department to be navigable streams. There appears to be no record in the War Department of any action relating to the Economy Light and Power Co." (R., 2123.)

Gen. McKenzie testifying, says, at page 2117: "As I recollect that matter, the Secretary in his finding, which was an impromptu matter, made a reference to the fact of nonnavigability, but that was based principally on the presentation made by Mr. Snapp, and the fact that the Secretary did not have to decide whether it was navigable or not; that was not a part of the decision." He says, again, at page 2119: "The statements with regard to the navigability of the river and the connection of the Government with it were made by Congressman Snapp."

It is to be noted that the representatives of the Power Company, after they began their conversations with the local Chicago office, Mr. Woermann, and the local engineer expressly states in his letter to the Chief of Engineers that he talked the matter over "at intervals with Mr. Woermann while he was assistant engineer in local charge of the Illinois River survey under this office before he had been employed by Mr. Munroe, as well as since that time."

The Government considers the correspondence between the local engineer and the Assistant Sec-

retary of War with the representatives of the Economy Light & Power Company and the discussion in Secretary Taft's office in no way material to any issue in this case, but as the matter is presented in appellant's brief in such a way as to impugn the motives of Mr. Wickersham and those responsible for the institution of the suit, we feel constrained to lay the whole matter before the court before discussing that evidence material to the issues in the case.

DESCRIPTION AND HISTORY OF THE DESPLAINES RIVER.

We can not better describe the Desplaines River and recite the essential points in its history than by quoting from the opinion of the Circuit Court of Appeals, in addition to what has already been quoted, the following:

> *The Desplaines up to 1894.*—The Chicago-Desplaines-Illinois water route, used from 1673 to 1825 by explorers and in the fur trade, was made up of portions of the Chicago and Desplaines Rivers, now some eight miles apart. It includes the Chicago River from its mouth on Lake Michigan to Robey Street, Chicago, on the west fork of the south branch, thence westerly, by water or portage, to Mud Lake, about two miles, thence to the Desplaines near Riverside, two miles, down the river to the Illinois, made by the confluence of the Desplaines and Kankakee. The part of this route between the Chicago and Desplaines is called the

Chicago divide. The Desplaines River rises near the county line between Racine and Kenosha Counties, Wisconsin, and runs in a southerly direction, parallel substantially to the west shore of Lake Michigan, through Lake and Cook Counties, Illinois, until it reaches Riverside, some 11 miles from the mouth of the Chicago River; thence it takes a southwesterly direction through Cook and Will Counties to its confluence with the Kankakee River near the east line of Grundy County. The original area of the Desplaines River Basin was 1,428 square miles, and with the changes which have been made the present area is taken at 1,392 square miles. The Desplaines River Basin is usually divided into the Upper Desplaines and the Lower Desplaines, the term Upper Desplaines applying to that portion above Riverside. The Upper Desplaines Basin has an area of 633 square miles, a general length of about 60 miles and a general width of about 10 miles, and is a true basin; has practically no true tributary basins, except Salt Creek, which has about 110 miles, entering at Riverside. It is a rolling country, originally covered with one-half to one-third in timber. Its general declivity by its flood plane is about one and a half feet per mile. The river bed is cut as a groove in a prairie, rather than the ordinary river bed, with an overflow or flood plane on either side. Originally it had a considerable quantity of swamp, marsh, and bog at headwaters; and in Lake County

and in portions of Cook County and also upon Salt Creek in Du Page County; and a lake development in Lake County from which that county derives its name.

The characteristics of the Lower Desplaines Basin, that portion below Lyons or Riverside, are that it covers by the general course of the valley about 42 miles to the confluence with the Kankakee, and has a total descent of about 102 or 103 feet. It has a true sub-basin in the Du Page River which covers 366 square miles. The total area is 795 square miles below Riverside, but outside of the Du Page River this area is only 429 miles. The valley in itself is not a characteristic valley like the Upper Desplaines, but has the appearance of being an old water course or outlet from the Great Lakes in which the modern stream follows through remnants of an ancient stream of much greater magnitude, a succession of pools and wide expanses with intermediate channels, which have not yet developed to their proper proportions, connecting these pools and water stretches. The river valley or river has two considerable tributaries aside from the Du Page, in Hickory Creek and Jackson Creek, but otherwise the drainage is essentially marginal or shore drainage.

Beginning within a mile of the township line between Riverside and Lyons is a long level expanse known as the twelve-mile level, consisting of a succession of water expanses and connecting straits or

channels from 150 feet up to a quarter or an eighth of a mile in width, in places, and with varying depths up to 10 or 15 feet in localities; these water expanses having a mud bottom which seem to be more vegetable deposits than alluvial, and which indicate originally much greater depth; and margined in by a vegetable growth. These expanses were for a long time used as ice fields by the ice interests which had their market in Chicago. Below the twelve-mile level is a succession of ponds and shallow connections in the rock, like Goose Lake and Round Lake, and others between Romeo and the twelve-mile level. This whole stretch is well described in the original land survey as a succession of swamps, ponds, lakes, and marshes connected by currents.

Below Romeo, which is 6 miles below Lyons, there is a declivity at the rate of 7 feet per mile from the Romeo highway down to the head of Lake Joliet, a distance of 11 miles, pretty uniformily distributed. Thence for a distance of about 13 miles between that and the mouth of the river there are some 10 miles occupied by pools, or Lake Joliet, which has a length of nearly 6 miles and has a width of 500 to 900 feet, and a depth originally up to 15 or 20 feet; and then a pool of over a mile in length immediately below Treats Island rapids; then Lake Du Page, some 13 miles in length, with a width of about 350 feet on the average, and with a depth of 10 feet and up-

wards, these pools being connected by intermediate rapids like the one at Treats Island and the one near the mouth of the Kankakee, and the reach of swifter and shallower water between the pool below Treats Island and the head of Lake Du Page. These distances are given only approximately, and to show some of the characteristics of the stream. This description applies to the the Desplaines River as it was known up to about 1894, when the Sanitary District works changed the conditions very radically through the valley above the city of Joliet, between there and Lyons or Riverside. The proportion of the Desplaines River itself from the end of the portage road to its mouth, or confluence with the Kankakee, that would consist of pools, would be about 60 per cent. The total distance from the portage road to the confluence with the Kankakee is about 44.5 miles. In that distance there would be the so-called 12-mile level, which is 13.7 miles, Lake Joliet, the pool below Treats Island, and Lake Du Page, aggregating 10 miles, and Goose Lake and Round Lake, and some other stretches unnamed, amounting in all to about 27 or 28 miles out of a total of 44.5. The distance from Dam No. 1 to the mouth of the river is 15.72 miles, of which about 10 miles consists of pools. This stretch is now more particularly in question. The condition of these pools if the Desplaines River were to run dry; that is, no water pass from pool to pool, would be that Lake Joliet would be

practically available for boats as before, the depth in it being from 20 to 25 feet at the maximum, and a large proportion of it having more than 10 feet.

The distance from Lake Michigan to the mouth of the Desplaines River is 58.32 miles, made up as follows:

	Miles.
From Lake Michigan to Ashland Avenue, which is substantially at the forks of the south branch of the Chicago River	5.5
Ashland Avenue to Ogden dam, which is across the old portage slough, on the range line, R. 12, 13, north of Summit	8.3
The so-called 12-mile level, actual length	13.7
From 12-mile level to Isle la Cache	6.7
Isle la Cache to Dam No. 1	8.4
Dam No. 1 to head of Lake Joliet	3
Head of Lake Joliet to mouth of Desplaines River	12.72
	58.32

A gauge record kept at Riverside for a period of 20 years from the year 1886 to 1904, both inclusive, showed the water stood at above 18 feet on the Riverside gauge an average of 4.3 days per year; at or above 13.8 feet an average of 47.6 days per year; at or above 13 feet an average of 73.2 days per year; at an elevation of 12.4 feet an average of 116.2 days per year; at or above 11.85 feet an average of 190.65 days per year.

When the water stood at 10.5 at the head of the 12-mile level at Summit, corresponding to 13 feet on the Riverside gauge, and a volume of 600 second-feet, the water in the portage swamp and channels connecting with the Desplaines River would be flowing over to the Chicago River to the

extent of the capacity of the trench that existed below this level. During the 20-year period referred to water would have flowed over the Chicago divide on an average of 73.2 days per year.

At all elevations when the water at Summit stood at 11.73 or above, corresponding to an elevation of 13.8 on the Riverside gauge, and to a volume of 1,052 second-feet, a boat drawing 15 inches of water could pass from the Desplaines River across the Mud Lake region and over the Continental or Chicago Divide and into the Chicago River without making any portage between them. Such condition would have prevailed during the 20-year period an average of 47.6 days per year.

At an elevation between 13.8 feet and 12 feet the water would gradually diminish in depth on the Chicago divide, and when a portage became first necessary it would be about one mile in length, and when it reached the level of 10.5 it would be two miles in length between the west fork at Western Avenue, Chicago, and the beginning of deep water in Mud Lake.

At an elevation between 13 feet and 12.4 feet on the Riverside gauge boats could no longer pass between Mud Lake and the Desplaines River, except light, and be entirely stopped, and a portage of one or two miles would be required between Mud Lake and the Desplaines River, in addition to the portage of two miles between the west fork and Mud Lake. In this condition there

would be a substantial navigable depth of 15 inches between Isle la Cache and Mount Joliet, a distance of 11 miles. Isle la Cache is located in the Desplaines River on the township line between the towns of Du Page and Lockport.

At an elevation between 12.4 feet and 11.85 feet on the Riverside gauge the Chicago divide would require the two portages mentioned, or the alternative of a 7-mile portage between the waters of the Chicago River and the Desplaines. The Desplaines would have a navigable depth of 12 to 15 inches, with possibly some deficiency in one or two localities; from Romeo down to the head of Lake Joliet there would be sufficient water for a boat at the higher stages to go down partially loaded and at the lower stages to go down light, but at the lower stages the cargo itself would require a transfer over the 11 miles from Isle la Cache to Mount Joliet. All the river below Lake Joliet would be navigated by discharging the cargo in part or wholly at Treats Island and near the mouth of the river.

There has been no time when the Desplaines River ran absolutely dry and there was not any water passing from pool to pool except as it was artificially produced by the abstraction of water from the Desplaines either for canal purposes during the time in which the Desplaines was used in that connection as a feeder or through the cutting down of the Chicago divide and the

drainage of the water towards Chicago at medium and low stages.

Changes in Desplaines River.—Various changes have been made in the Desplaines River from its condition as it existed in a state of nature. The portage swamp region lying east of the range line at Summit has been drained and made tributary to the Chicago River, except so much as is tributary to the canal, this area amounting to 48 square miles. There has been added from the Sag region an area of about 12 square miles, making the change below Lemont, 36 square miles to be deducted from the former areas. The deficiency of rainfall averaging 2.9 inches per year during the period of 20 years from 1887 to 1910, computed from the Riverside gauge, would produce a deficiency in run-off of probably 15 or 20 per cent, and the effect of that would be to diminish both the volume and duration for the stages of water exhibited in the table referred to. There is also a deficiency in the run-off due to the substantial clearing away of the forest-covered area of 5 per cent. There are changes which have affected the distribution of the run-off. The clearing away of the forests has destroyed an element of control which has diminished the control and the duration of the stages of water, and in addition the restriction of ponds and lakes and the drainage of wet lands, bogs, and marshes, and particularly the destruction of a special control existing in the portage swamp region and

12-mile level, all of which under natural conditions prolong the stages of water.

There have been radical changes in reference to the depletion of the water in the Desplaines River from a state of nature. The first change of significance was due to the construction of the Illinois and Michigan Canal in 1848. The effect of the construction of that canal upon the water in the lower Desplaines was a reduction of the drainage of the river below the dams at Joliet to less than 250 square miles out of a total of 1,428 square miles. Further interference arose from the fact that the location of the canal along the south and east side of the valley caused the hill drainage to be turned in part toward Chicago, and on the tangent between Summit and Bridgeport (in the southwestern part of Chicago) it ran across the south arm of Mud Lake, cutting off the drainage and reservoir control of that portion of the portage swamp region lying to the south of the canal. From 1866 to 1871 the Illinois and Michigan Canal was deepened, causing interference with the flow of the river. Further interference was caused by the construction of ditches in the Mud Lake region, and by the erection of pumping works at Bridgeport in 1883. Interference also occurred by reason of the construction of the river diversion by the Sanitary District in 1893–4, by which the Desplaines River was shifted to the west and north side of the

valley so as to leave a site between the river as thus changed and the Illinois and Michigan Canal for the construction of the drainage canal itself. Interference has also been caused by inhabitation which has cut away forests, thus curtailing the run-off, and there has been drainage of swamps and wet lands, and the destruction of ponds and lakes. The Sanitary and Ship Canal, which was completed in 1892, joins the Desplaines at Dam No. 1, 31.6 miles from Riverside, from which point its waters flow into and increase the current of the Desplaines.

These various changes have materially interfered with the flow of the river, and the conditions in the basin itself have been changed by the actual distribution of the flow. The Desplaines River has an impermeable soil bottom, and the control that was exercised was surface control largely. The destruction of this surface control has affected the flow of the water much more radically than would have been the case had the ground been permeable.

NAVIGATION OF THE DESPLAINES.

The United States District Court in its memorandum opinion found as follows with reference to this point:

> United States claims among other uses actual navigation from early fur-trading days down to end of first quarter of last century.

> Proof of actual specific use by customary mode of trade and travel by water—that is, by kind of craft then used for that purpose in rivers of United States—throughout this period appears. Controversy here has really been as to extent rather than the fact of such use. This evidence taken with existence of portage from Chicago River to Desplaines during time mentioned and large collection of historical documents, contemporaneous maps, and historical records and reports forbids conclusion river was not subjected to such use for trade and travel down to and subsequent to enactment of congressional legislation referred to. From this follows river shown by evidence to be navigable water of United States when bill filed and at present time. (R. 3236.)

The judgment of the court of appeals sustaining these findings by the district court can not be overturned unless shown to be clearly contrary to the weight of the evidence.

The Government feels that it has a right to rest upon these conclusions and this concurrence of opinion which is so amply supported by the evidence appearing in a somewhat condensed form in the 3,000 printed pages contained in the three volumes of Abstract of Proofs now before the court and the 50 or more maps also appearing in the record, but not otherwise reproduced.

Notwithstanding this, the Government believes that, as counsel for appellant have failed to review the evidence, it should, in view of the importance

of the case, give the court such aid as may come from a brief reference to the principal evidence introduced on both sides.

FORMER LITIGATION BETWEEN APPELLANT AND THE STATE OF ILLINOIS.

Some years ago the State of Illinois brought, in its own courts, a suit against the appellant, in which it sought the same relief which the United States has obtained in this case. In that case, upon the evidence then submitted, the Supreme Court of Illinois held that the Desplaines River was not navigable and hence refused to enjoin the building of the dam (241 Ill. 290). The United States not being a party to that suit is, of course, in no way bound by the judgment. But the evidence in that case was materially different from that in this case. Some of the differences will be noted in the review of the evidence which we will now undertake.

GOVERNMENT'S EVIDENCE.

Professor Clarence W. Alvord, associate professor of history, University of Illinois, special editor publications Illinois State Historical Library, including bulletins entitled "Illinois in the Eighteenth Century," Volume II, Virginia Series, Volume I, Cahokia Records, Volume IV, Illinois Historical Collections, Subtitle Executive Series, Volume I, Governor's Letter Books, "The

French Archives of Illinois," the "Archives in the State Capitol," " The Genesis of the Proclamation of 1763," " The British Ministry and the Treaty of Fort Stanwix," " The Conquest of St. Joseph by the Spanish in 1780," " Capture of Vincennes by George Rogers Clarke in 1788 " and other historical articles and papers, testified for the Government.

All of his courses for the doctor's degree have been in western history. His position had been that of a specialist in Illinois history since 1905. He had made a search of printed materials and had found a quantity in Illinois, in Canada, Boston, Albany, and Philadelphia bearing on early Illinois trade, including the fur trade. (R. 1–3.) Furs constituted one of the most important articles obtained by Europe from North America. One of the principal fur-bearing animals was the beaver, found abundantly around the rivers flowing into the lower part of Lake Michigan (p. 5). The three main periods in the history of the fur trade:

1. 1670 to 1763, largely by the French.

2. 1763 to 1812, by the British, coming down through Canada.

3. 1812 to 1834, aided by statutes, American Fur Company monopolized the trade (p. 6).

He cited numerous historical works, including one by F. J. Turner, which refers to the Chicago-Desplaines-Illinois route.

The American Fur Trade in the Far West, by H. M. Chitterden, in three volumes, who says that the fur trade was a leading branch of commerce in the Western World; that St. Louis was the principal, if not the only emporium, and communication with New York and other seaboard towns took place chiefly by the Ohio or the Great Lakes. "In the latter case the route was sometimes by way of the Illinois River to Lake Michigan." (*Reference to Chittenden not in the State case.*)

Refers to "Travels and Explorations of the Jesuit Missionaries in New France, 1610 to 1791," edited by Reuben Gold Thwaites, secretary of the Historical Society of Wisconsin, volume 59, containing a report by Father Marquette of the first voyage on the Mississippi made by a Frenchman, who said, "We therefore reascended the Mississippi, which gives us much trouble in breasting the current. It is true we leave it about the 38th degree to enter another river, which greatly shortens our road and takes us with but little effort to the Lake of the Illinois."

This trip was made *in the summer of 1673;* and Marquette continues, "In the spring and part of the summer there is only one portage of half a league." (R. 23.) Alvord explains that the Lake of the Illinois was Lake Michigan and the route was via Illinois-Desplaines-Chicago Rivers.

Attention is called to *Joliet's map*, dedicated to Frontenac, appearing as Exhibit 1, showing the *Chicago-Desplaines portage* and the *Chicago-Des-*

plaines-Illinois route. Alvord refers to French work by *Pierre Margry,* many years archivist in Department of Marine established by Colbert. It contains report to Frontenac, governor of New France, to Colbert, mentioning the opinion of Joliet, who accompanied Marquette, to the effect that "*by the route in question one would be able to go easily by ship to Florida by means of a very good waterway; that there would be only one canal to make, and that by cutting through one-half a league of prairie to enter from the lower part of the Lake of Illinois into the River St. Louis.*

Witness then refers to record of trip by Marquette again in *1674. He went in the spring and did not make any portage.*

In 1681 La Salle went up the river in search of Tonty. Margry gives the following account: "He [Tonty] ascended by this river without leaving any sign of his passage. In this he made a great mistake, which gave much trouble to Monsieur La Salle, as we shall see hereafter. He arrived *in a few days* at the Lake of the Illinois, on which he embarked, going from south to north along the western coast of this lake. He experienced incredible difficulties in this lake navigation, since he with all of his company was reduced to extremities from lack of provisions. At length he arrived, however, among the Pottawatomies, where he was compelled to pass the winter." (R. 29–30.)

Margry quotes La Salle's criticism of Joliet's project for a canal connecting the Illinois with

Lake Michigan on account of the difficulties of navigation. (R. 34–35.)

The witness gave it as his opinion that both Joliet and La Salle agreed on the possibility of using the Chicago-Desplaines route for commerce in smaller boats and canoes. Their disagreement was over the feasibility of a short canal and the usefulness of the route for larger boats. He says Joliet was one of the Jesuits who had a monopoly of the fur trade in the Lake region and desired the use of the route in connection with the Lakes. La Salle on the other hand was prejudiced against the Jesuits and had a patent which gave him the privilege of trading in the Illinois country, but forbade him to trade in the region which was already occupied by Canadian traders and from where furs were regularly carried to Montreal and Quebec. (R. 42.) In short, La Salle desired the trade to go down the river, and did not wish anything done to attract the traders from the north.

Government introduced a map by *Father Hennepin,* published in *1683, showing the Chicago-Desplaines-Illinois route and the Chicago-Desplaines portage.*

Hennepin also wrote a description of the Illinois country, using La Salle's narrative freely. Although he prepared the map just noted, Alvord says he never used the Chicago-Desplaines route, his only trip being by St. Joseph-Kankakee port-

age. Joutel's journal of La Salle's last voyage, 1684–1687, shows that La Salle got a French fleet from the King to go up the Mississippi for the purpose of carrying out his idea of making the Mississippi a channel of trade. On the way he was murdered. Joutel became the leader of the party, which then sailed to the Illinois River, where they met Tonty; and the following March the party set out for Chicago, embarking on the river at Fort St. Louis March 21st, *and in spite of the difficulties occasioned by high water, arrived in Chicago March 29th.* (R. 44–45.)

Champigny, intendant of new France, wrote to Louis XIV from Quebec, October 13th, 1697, recalling that Tonty and La Forest have been permitted to keep Fort St. Louis on condition that they would not trade in beaver skins there and saying that they certainly would not stay there except to trade in beaver skins and they would do so at an immense profit; that they had established a *warehouse at Chicago and another at Michilimackinac.*

The witness says that this passage shows that *La Salle's successors* were exploiting the fur trade of the region and *necessarily using the Chicago-Desplaines River route* as a means of communication. (P. 46–48.) Early Voyages Up and Down the Mississippi, by Cavelier, St. Cosme, LeSueur, Gravier, and Guignas, by John Shea, an historian of the Roman Catholics in America, who was al-

lowed to examine the archives of the Roman Catholic bodies in Canada, gives an account of St. Cosme going down the Chicago-Desplaines route. He left Chicago October 29th, 1700, made a portage " which is three leagues when the water is low and only a quarter of a league in the spring " (p. 49).

Volume 65, Jesuit Relations, by Thwaites, contains a letter from Father Gravier which the witness says indicated he *used the Desplaines route September 8, 1700.* In Collections of the State Historical Society of Wisconsin, volume 16, there is a letter from two French officials in New France to the French minister urging the establishment of a post at Chicago " *to facilitate access* to the Illinois-Miami " Indians. A footnote by Professor Thwaites says, " *of the portage here mentioned that of Des Chesnes (the oak trees) was the one from the Chicago River to Desplaines, the earliest and best known route between Lake Michigan and the Mississippi.*" (Pp. 54–55.) (*The foregoing was not in the State case.*)

Chicago Antiquities, Comprising Original Items and Relations, Letters, Extracts, and Notes Pertaining to Early Chicago, Embellished with Views, Portraits, etc., by Henry H. Hulburt, contains a rough draft of a report by *James Logan,* bearing date December, 1718, designed to aid Governor Keith, of Pennsylvania, in preparing his memorial to the British Board of Trade. Logan, who came to America with William Penn on his second visit

as his secretary, filled many offices in the Province, including that of chief justice, president of the council, and governor. The report describes the passage from Lake Huron to Lake Michigan, thence 150 leagues to Fort Miami at Chicago, and continue "*up the River Chicago they sail but three leagues to a portage of a quarter of a league. They then enter a very small lake of about a mile and have another very small portage and again another of two miles to the River of Illinois, thence down the same 130 leagues to the Mississippi.*"

(NOTE.—It seems probable Logan did not personally visit Chicago, but report shows the general knowledge of and the well-known character of the route.) (*The foregoing was not in the State case and is not referred to in appellant's brief.*)

A quotation from *Charlevoix's Journal,* referring to a journey in 1721, says, "*I had two routes to chuse to go to the country of the Illinois. The first by returning to Lake Michigan and entering a little river at Chicago. After ascending five or six leagues up this river, there is a passage to that of the Illinois by two carrying places, the longest of which is not above a league and a quarter.*" (R. 58.) Charlevoix did not use the route, but statement shows it was a well-known route. (*The foregoing not in the State case.*)

"The Contest in America Between Great Britain and France with its Consequences and Importance. By an Impartial Hand. 1757." The author, John Mitchell, British physician, specialist

in botany and cartography, a man of learning and high reputation, says, with reference to the fur trade, "For this they have hitherto been obliged to go to a vast way aroundabout by way of the four Great Lakes and thence down the River Illinois into the Mississippi." *DuPratz* (1774), speaking of a river called the Illinois, says it was by this river that the first travelers came from Canada into the Mississippi. (R. 661.) *Choisseul*, prime minister of France, suggesting terms of peace, says the colonists who trade in peltries in the woods "betake themselves to the southern extremity of Lake Michigan, *whence by means of a very short portage, which one calls the Portage aux Chenes, they descend by the river, the Illinois, into the Mississippi.*"

Letter was written to guide the French agents in negotiations and secure the retention of the exclusive navigation of Lake Michigan and a sure access to the Illinois trading posts. (R. 71.) (*Foregoing not in State case and not referred to in appellant's brief.*)

Work on topography in western country by *Thomas Hutchins*, published in London in *1778*. Hutchins, captain in British Army in the French and Indian War, and a civil engineer employed by the Government to make maps of the West. Map used by later map makers as authority. Following passage appears: "*The Illinois River furnishes a communication with Lake Michigan by the Chi-*

cago River and by two portages between the latter and the Illinois River, the longest of which does not exceed four miles." (R. 72.)

Haldimand papers from Canadian archives at Ottawa. General Haldimand, British officer, governor of Florida and of Canada, 1760–1780. Historians regard the copies as authentic transcripts of the originals. Several passages quoted make references to the Desplaines route, showing it a well-known route and one frequently used for travel. One refers to the danger of Clarke attacking the British *by coming up the Illinois River to Chicago.* (R. 73–74.)

A letter from Lieutenant Governor Sinclair to a British colonel tells of *Canadian and Indian troops using the Illinois River route to go to the Mississippi and returning that way.* (R. 75–76.) Another letter from a British captain gives a plan of attack on the Illinois country by means of barges from Chicago "*where there is a portage of half a league in good weather; in this way we could come without difficulty to the Illinois.*" (*The Haldimand papers were not in the State case and not referred to in appellant's brief.*)

"Archives of aboriginal knowledge, containing all the original papers laid before Congress respecting the history, etc., of the Indian tribes of the United States," 1860, by *Henry R. Schoolcraft,* contains an account by Jean Baptiste Perrault, who in 1783 was apprenticed as a clerk to

Mr. W. Kay, of Montreal. May 16th, 1783, Mon sieur Marchisseaux " directed me to assemble th men whom he had engaged in Montreal for th voyage." They went to LaChien, where th waters from the north delayed them to the 27th They arrived at Mackinac with their two canoe June 28th, remaining there until July 15th. Fron thence they went to Green Bay, thence to Sau Village at Hurkey River. " Monsieur Marchis seaux being necessitated to pass there instead o *the direct route from Mackinac to St. Louis b way of the Illinois* in order to collect his credit from the Indians * * * we left Cahokia o the 4th of May for Mackinac. Directions *were t pass by Chicago,* having one barge and one canoe etc." (R. 78–79.)

" Journal of a voyage made by *Hugh Hewar* to the Illinois Country." Exact copy of origina in Heward's own handwriting tells of a trip fron Chicago to Cahokia by way of the Desplaines i the spring of *1790*, shows it was taken in *pirogue.* Manuscript describes journey from De troit through the Great Lakes down to the south ern end of Lake Michigan, *then by Chicago, th Desplaines to the Illinois, thence down to Caholi in the spring of 1790.* The lake trip was appar ently taken in bad weather. "May 11th, 1790, en gaged five Indians to help us over the carrying place with the pirogue. Got over nearly at mid day. Passed in the run and small lake to th

River DePlain and course running southwest" (p. 82).

"The Life and Public Services of *Arthur St. Clair,*" containing a report of the President in *1790* concerning water routes between Lake Michigan and the Mississippi, by St. Clair, then governor of the Northwest Territory, says: "*Much the greatest part of the merchandise for the trade of the Missouri River is brought from Michilimackinac by that of the Illinois*" and "the furs in which these goods are generally paid for are carried through Canada *by the same communication up the Illinois River to Chicago and thence by a small portage into Lake Michigan.*" It says that in the spring the waters rise so high "*that the intermediate space is overflowed and is passable by vessels in use there which are bark canoes, but which carry a very considerable burden and are navigated by three to five persons.*" (R. 87.)

General *Collot,* Frenchman, *Governor of Guadeloupe,* in connection with a trip through western America in the latter part of the eighteenth century reports that in high water boats carrying *from fifteen thousand to twenty thousand weight can make the passage without portage* by traversing a marsh where there is from four to five feet of water. (R. 88.) (*Not in State case and not listed by appellant.*)

Captain *Imlay,* United States Army, also commissioner for laying out lands in back settlements,

in "A Topographical Description of the Weste
Territory of North America," published in *179*
refers to the Desplaines Route and says it had "
portage of only two miles." (R. 89.)

Robert Dickinson, an Indian trader, wrote Jul
4th, *1793, mentioning the route by Chicago as on*
of two ways of communication between Mackina
and the Mississippi. (R. 90.)

Peace treaty negotiated by General Anthon
Wayne with the Indians in 1795 stipulated tha
the United States was to have a free passag
from "*the mouth of the Chicago to the portag*
between the river and the Illinois, and down th
Illinois River to the Mississippi," (R. 91.) (*Las*
two references not in State case and not referre
to by appellant.)

Thomas Forsyth, an early fur trader, made
memorandum of distances on the Chicago-Des
plaines, Illinois, route in *1814* (R. 95) and i
another letter mentions the route as a possibl
way by which the British and Indians might com
down and attack the Americans (R. 97). (*No*
referred to in State case or in appellant's brief.

Letter from *Governor Cass* to Secretary of Wa
in 1815: "There are three great channels of com
munication by which traders may introduce good
in the Mississippi and Missouri country from th
British dominions. One is by way of Chicag
and down the Illinois." (R. 99.) (*Not in th*
State case and not referred to in appellant'
brief.)

John Kinzie wrote Governor Cass in 1815. Urges building of a military post at Chicago as a navigation of the Illinois and Fox Rivers " will in a few years become an object of great importance to the U. States as *at present boats of several tons burden can pass from Lake Michigan into the Mississippi River.*" (R. 101.) (*Not in State case and not in appellant's brief.*)

Wm. Darby, famous United States surveyor, explored region 1818 and wrote " *No doubt now remains but that the Chicago and Illinois Rivers afford by far the most natural eligible connection between the northern and southern waters of the United States.*" *He refers particularly to the Chicago and Desplaines Rivers.* (R. 105–106.) (*Not in State case nor referred to in appellant's brief.*)

Darby in a footnote printed an editorial from the St. Louis Enquirer by *Thomas A. Benton,* referring to Graham & Phillips, says that the commissioners will run two lines from the southwestern part of Lake Michigan to the Illinois River, embracing the little Rivers Chicago and the Plein at the carrying place between them, which form the channel of communication between Lake Michigan and the Illinois River. "*The French of Canada and of the valley of the Mississippi have communicated through this channel since the settlement of the countries. In high water boats of ten or a dozen tons pass without obstruction. In dry*

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season they are unloaded, placed on vehicles, and drawn by oxen over a portage of a few miles, and landed into the river or lake, as the course of portage may require. Hundreds, nay thousands of boats have been seen at St. Louis which have made a similar passage. (R. 106.) (*Not in State case or appellant's brief.*)

The report of Graham & Phillips to Secretary of War saying that in the spring "*boats of six or eight tons engaged in the Mackinaw-Mississippi trade run through backwards and forwards so as to make no portage between Mackinaw and the Mississippi.*" (Pp. 114, 115; see also 116.)

They also refer to the route as "the route by the Chicago, as followed by the French since the discovery of the Illinois," and say it "presents at one season of the year an uninterrupted water communication for boats of six and eight tons between the Mississippi and the Michigan Lake, etc."

"A Pedestrious Tour of Four Thousand Miles through the Western States and Territories during the Winter and Spring of 1818, by *Estwick Evans*, Concord, 1819," states, "There is a communication between the Illinois River & Lake Michigan by way of the Chicago River and two portages." (*Not in the State case or referred to in appellant's brief.*)

Gurdon S. Hubbard's Sketch of Life, 1802–86, arranged by a nephew, and a paper read by Hub-

bard himself give information as to use of the route by the American Fur Company.

A list of employees of American Fur Company, 1818, contains the following entry at page 162: "Engaged April 26, 1818. Hubbard, Gurdon S. Time, five years; capacity, clerk; where engaged, Montreal; wages, $120; where employed, Illinois River. Remarks, Illinois River." (R., p. 118.) He tells of his engagement with the fur company, his journey to Mackinac Island, then having a population of 500, principally Canadian, French, and half breeds. "I was detailed to the *Illinois brigade of traders*, under the command of Antoine Des Champs, a highly educated gentleman, who had been more than 40 years an Indian trader on the Mississippi, Illinois, and Ohio Rivers. Our brigade of traders left Mackinac in September, coasting the eastern shore of Lake Michigan to Chicago; there we found Fort Dearborn garrisoned by United States troops. *John Kinzie* and A. Ouilmett were the only white inhabitants at that period in Chicago and northern Illinois." Nothing is here said (Abst. pp. 118–123) about the number of boats in the Illinois brigade, but it appears later from Hubbard's statement (R. 1511) that there were *at least 12*. In connection with Hubbard's return to the Illinois brigade, after his absence of a year and his departure from Mackinac Island (R. 400), he says: "In due course of time our brigade started, *the 12*

boats led by Mr. Des Champs and the old familiar boat song." They arrived in Chicago, where he joined Mr. Kinzie's family, "and remained there for several days *until the brigade again moved for the Illinois River.*"

The number of boats was insufficient to carry all the furs collected at the trading posts, as Hubbard tells us in connection with the winter of 1822 to 1823. "*We had accumulated more furs and peltries than our boats could carry up the Desplaines River, and I was accordingly dispatched with four boat loads to Chicago. These I stored with Mr. John Crafts and returned to the brigade, when we all moved forward to our annual return to Mackinac.* A portion of our furs were shipped from Chicago for the first time in a small schooner, which had brought supplies from the garrison. In 1819 the brigade consisted of 13 boats." (R. 1195.)

Hubbard's description of Mackinac Island in 1818 and the course of the fur trade carried on by the American Fur Company during his connection with it, including the description of the annual trips from Mackinac Island to the Illinois River via Lake Michigan and the Chicago-Desplaines route, are enough in themselves to show that the method of trading had long been established when he joined the company. (R. 123.)

But, in addition, attention is here called to the fact that the American Fur Company, organized

in 1816, was a reorganization or combination of the Mackinac and Northwest Companies organized in about 1784, which apparently followed the General Store organized by a majority of Mackinac merchants in 1779 for mutual protection. These companies traded on the Illinois (R. 1671); and that the regular course of trade was by Lake Michigan and the Chicago route is evidenced by the statement of Hubbard relative to a house located on the Chicago River prior to 1778. "This tradition I received from Messrs. Antoine DesChamps and Antoine Beson, who from about 1778 had passed from Lake Michigan to the Illinois River yearly; they were old men when I first knew them in 1818." (R. 1667.) At that time (1818) Mr. DesChamps, superintendent of the Illinois trading post, had been an Indian trader on the Mississippi, Illinois, and Ohio Rivers for more than 40 years.

These methods continued up to 1825, when Mr. Des Champs, having grown old and worn by long-continued service, resigned his position as superintendent of the Illinois trading post of the American Fur Company, and on his recommnedation Hubbard was appointed to succeed him. "I now determined to carry out a project *which I had long urged upon Mr. DesChamps, but without success.* * * * The goods and furs I proposed to transport from the Indian hunting grounds on pack horses. In this manner the long, tedious, and diffi-

cult passage through Mud Lake into and down the Desplaines River would be avoided and the goods taken directly to the Indians at their hunting ground instead of having to be carried in packs on the backs of men. During the year 1822 I had established a direct path or trace from Iroquois post to Danville and now extending it south from Danville and north to Chicago, thus fully opening Hubbard's trail from Chicago to a point about 150 miles south of Danville." (R. 221.)

(We note here that Mr. DesChamps, with his many years experience still believed that the Chicago-Desplaines route was the best method of reaching the trading posts, although, as the testimony of the historians hereafter referred to will show, the hunting grounds had receded far from the Illinois River, and the quotation itself shows that the merchandise exchanged for the furs had to be carried from the river in packs on the backs of men.) There also appears a statement to a trip taken by Hubbard over the Chicago-Desplaines River route for the purpose of getting supplies.

Hubbard's account shows that in the fall in the dry weather the boats were unloaded and pushed through the ditch on short rollers. Four men only remained in a boat and pushed with poles while six or eight waded in the mud alongside and assisted in that manner. (R. 119.) This gives some indication of the number of men manning each

boat. (*No evidence in regard to Hubbard or the use of the river by the American Fur Company appeared in the State case.*)

The return journey appears to have been made in each case without any portage and sometimes with the use of sails. He says, "*In the spring following we returned by the same route. The rivers being full we had no portage to make passing the ditches and mud lake under full head.*" He refers to the trading posts on the Illinois River as being about 60 or 70 miles apart. (R. 123.) (See also 122.) Page 303, Hubbard says, "*I had before this been told by Mr. DesChamps that he made a trip every fall to St. Louis with one boat to purchase supplies and tobacco and other necessaries for distribution among the various traders on the Illinois River.*"

One of appellant's witnesses also says that in the spring of 1825 Kinzie sent two men in a canoe from Chicago to Peoria. Hubbard, about the same time, went down in another canoe with one companion. They went on to St. Louis, got some goods, and delivered them to Chicago. (R. 1701.)

Henry R. Schoolcraft, historian, says that at the time he visited the Desplaines August 13th, 1821, the water varied in depth from one to two feet, but this was when rivers "are generally at their lowest stages." "*During the spring floods the Desplaines may be estimated to carry a depth of eight or ten feet of water to the junction of the Kankakee.*" (R. 126.) (*Not in the State case.*)

"Recollections of Wisconsin since 1820, by Col. *Ebenezer Child,*" a fur trader from the East, recounts a trip in 1821 to St. Louis returning from St. Louis "by the way of the Illinois River." He could not find a portage, "as it was full of water." (R. 127.) (*Foregoing not in the State case.*)

"*Ogden* Letters," published in *1823, George Ogden,* who went on a business trip to the western country in 1821, says "*The Plein is navigable within 2 miles of the Chicago River and boats are said to have passed loaded from one to the other at high water.* (R. 128.)

Ordinance of 1878 fixed the northern boundary of Illinois at the line west from southern boundary of Lake Michigan. Pope, the Illinois delegate, got this changed so as to have a port on the lake which would tend to bring in the State northern settlers by the northern waterway." This obviously refers to the Chicago-Desplaines. (R. 129.) (*Not in State case and not in appellant's brief.*)

"A Gazetteer of the States of Illinois and Missouri * * * and a particular description of towns, river, etc., by *Lewis C. Beck,* A. M., member of the New York Historical Society and of the New York Lyceum of Natural History. Albany, 1823," referring to the Desplaines River says, "The fact of an easy and during some seasons an *uninterrupted communication between Lake Michigan and the head waters of the Illinois was observed by the French at the first discovery of the*

country; and on this account they immediately erected trading establishments on different parts of the route. (R. 131.) * * * "The information of traders and voyagers was such as *left no doubt of the existence of a natural canal between Lake Michigan and the Illinois at some seasons of the year.* * * * *Except in very dry seasons the portage was seldom more than 3 miles.*" (R. 131–132.)

Narrative of an expedition to the source of St. Peter's River, etc., 1823, by order of the Honorable J. C. Calhoun, Secretary of War under command of Stephen H. Long, compiled by William H. Keating, A. M., professor of minerology and chemistry, University of Pennsylvania, London, 1825, says, with reference to the Chicago-Desplaines, "*Having been informed that this route was frequently traveled* * * * *we determined to ascend the Chicago River* (*135*). * * * *Lieutenant Hopson, who accompanied us to the Desplaines, told us that he traveled it with ease in a boat loaded with lead and flour.*" (R. 136.) (*Foregoing not in the State case.*)

"Early Reminiscences of Wisconsin by John H. *Fonda*" describes *a trip up the Desplaines* with a party and an Indian guide to Chicago where they found Mr. Hubbard. (R. 137.) (*Not in State case.*)

"*Drown's* Record & Historical Review of Peoria, 1850," states that John Hamlin, "who is still

with us," was a clerk in the American Fur Company store at Peoria and while so *engaged "exported the first produce in Chicago in 1825 in keel boats as far as the mouth of Kankakee River, and from there in Durham boats to Chicago, having built a warehouse in the former place in which to store in from the keel boats, to be taken by the Durham boats up the Aux Plain River."* The principal articles exported were pork, beans, and other provisions for the use of the fur company. (R. 139.) This incident is referred to by Judge McCulloch in "Early Days of Peoria and Chicago." (R. 140.)

Report of Select Committee to Eighteenth Congress dated February 11th, *1825;* repeated passages have been made "by uninterrupted navigation from the river (Illinois) into the Lake." (R. 141.) (*Unable to locate this in State case.*)

"The American Gazetteer," collected and compiled by *Jedidiah Morse,* printed in *1797,* under heading Illinois, "*The Illinois furnishes communication with Lake Michigan by the Chicago River between which and the Illinois are two portages, the length of which do not exceed four miles.* (R. 143–144.) (*Not in the State case and not in appellant's brief.*)

"*The Navigator,*" containing directions, etc., "for navigating the Ohio and Mississippi Rivers," published in Pittsburgh in 1824, says, "Between a branch of the Illinois and Chicago River which empties into Lake Michigan there is a portage of two miles; from this portage to the lake is a *bateau navigation of sixteen miles.* By this happy connection of waters there is a *complete communi-*

cation from New York to New Orleans, * * * the greatest stretch of inland navigation perhaps known in the world. This route is by * * * (here mentions the Great Lakes) *into the Chicago River mentioned above; thence down the Illinois and Mississippi Rivers.*" (R. 146–147.)

"Chicago Antiquities" contains a letter signed J. G. F. (Lieut. John G. Furman, U. S. A.), dated Fort Dearborn, 1830. "During the spring floods a considerable lake is formed, *the waters of which flow simultaneously through the Chicago, the Aux Plain, and the Illinois River into the great northern lakes and into the Mississippi.*" (R. 149.) (Not in State case and not referred to in appellant's brief.)

"The History and Geography of the Mississippi Valley, by *Timothy Flint, 1832,*" author, who traveled extensively and reputed to be a keen observer, careful in statement, says with reference to the Chicago-Desplaines route, "We have already remarked that at *certain seasons of the year boats of 5 tons burden already passed through the morass from one extremity of which the waters are discharged into the Chicago of Lake Michigan;* and from the other *into the Plain of the Illinois;* thus furnishing a natural communication between the two rivers. (R. 152–153.) (Not in State case; not referred to in appellant's brief.)

"Narrative of an Expedition through the Upper Mississippi in 1832," by *Schoolcraft,* enumerating routes between the Mississippi and the

Lakes, first mentions " By the Illinois and Chicago Creek * * *. The routes *by the Illinois and by the Wisconsin* were first laid open by the French enterprise and have been used *by canoes and flat-bottom boats* in their natural state * * * *for about 160 years.*"

"A Winter in the West," published in 1835 by *Charles F. Hoffman,* lawyer and editor, considered reliable and accurate, says with reference to the Chicago-Desplaines Route, " *Boats of 18 tons have actually passed over the intervening prairie* (the portage) at high water." (R. 156.) (*Not in State case and not referred to in appellant's brief.*)

The History of Will County, published in 1878, taken from histories of the country by Woodruff, Perrin, and Hill, says: "*As early as 1834 the products of the farm were boated down the Kankakee to the Desplaines, up the latter river to Chicago.* It is related that during the year named some parties loaded a boat on Sugar Creek, a tributary to the Iroquois, with 300 bushels of oats, 300 bushels of wheat, and some hams, with the design of taking them to Chicago to supply the garrisons there. The trip down the Kankakee was accomplished without accident, but after entering the Desplaines near Treats Island, the boat dipped water and so dampened the grain that they were obliged to unload and try to dispose of their products at that point." (R. 159.) (*Not in the State case and not referred to in appellant's brief.*)

George W. Reed, a witness called in the State case, and then 84 years of age, apparently refers to the same incident and tells of his brother buying 5 or 6 bushels of wheat, which they spread out on sheets and quilts to dry. (R. 2103.)

"Illinois in 1837" refers to the Chicago-Desplaines Route as one "used by traders as *a medium of communication between the Great Lakes and the Mississippi from the first discovery of the country by Europeans.*" Refers to the route as having been navigated by boats of some burden. (R. 162.) (Not in State case and not referred to in appellant's brief.)

"Narrative and Critical History of America, edited by *Justin Winsor*, librarian of Harvard University and corresponding secretary of the Harvard Massachusetts Historical Society, 1887." The book *refers to the Chicago-Desplaines route as one of the three trade routes of the Mississippi* and states that *this route appeared on the earliest maps of Marquette and Joliet and is displayed in the great 1684 map of Franquelin.* In "The Mississippi Basin," the same author says, "before the end of the seventeenth century *the portages at the head of Lake Michigan* had become the *best known* of all, and there had been a trading post for something like fifteen years at the Chicago River." (R. 166.)

"The Old Northwest," by B. A. Hinsdale, Ph. D., professor of science at the University of Michi-

gan, contains a reference to the Chicago-Illinois route. (R. 166–168.) Also in a volume of the American Nation Series, by Prof. Farrand. (R. 168.)

The "History of Wisconsin," by *William R. Smith*, regarded as one of the best local State histories, contains the reference to the *Chicago route* made by the United States Supreme Court in the Montello case.

Based on the foregoing authorities and on his own investigation, Professor Alvord testifies, "*My opinion is that from the latter part of the seventeenth century through the first third of the nineteenth century men engaged in the fur trade passed up and down the Chicago and Desplaines Rivers in canoes and flatboats very regularly. * * * That the most active trade carried on the two rivers falls between the period 1783 and 1825 or thereabouts;* that the traders found a very easy passageway by means of these rivers in the early spring. That during the time of drought, such as occurred in the summer or fall, the passage was hard, but *even then they forced their boats through the waterway, often being obliged, however, to carry their packages around the shoals and rapids.*

"*I have not found any historian writing of the situation in the West competent to pass judgment upon material and who had investigated material that denies that the Chicago and Desplaines Rivers were so used.*"

Witness says "barque" was a boat of several tons, and when La Salle used the word witness concluded he was discussing a deep waterway from Lakes to Gulf (R. 189.)

Use of wagon road does not disprove utility of waterway. (R. 281.) Says La Hontan trip was "of the Dr. Cook variety." (R. 284.)

One would not expect to find a very large number of accounts of the actual use of the river situated far from civilization like the Desplaines was at the time it was used by the fur traders. The men who were using it were not given to the pursuit of literature. The majority of them were illiterate French Canadians, and many of the English were not educated men. *The novelty of the travel over such a route had worn off,* so that it would be surprising if there had been preserved many narratives by the men who had made the journey by themselves. *To me it seems surprising that we have as many as we have preserved.* (R. 299.)

Hubbard's book contains a passage in which author tells that while eating breakfast at Mr. Kinzie's home he heard men coming up the river singing and shouting. He went out and saw *Governor Cass,* of Michigan, and his secretary, Robert Forsyth, in a birch-bark canoe manned by *thirteen men, twelve paddlers and a steersman,* rapidly approaching, keeping time with their paddles to a Canadian boat song. Cass had gone to

Green Bay by appointment to hold a treaty with the Winnebago and Menominee Tribes. They did not appear. News of hostilities reaching the governor he procured the canoe and crew, started up the river, making portage into the Wisconsin, down it and the Mississippi to Jefferson Barracks, below it, and to St. Louis. Persuaded commanding officer to charter steamer, and embarking troops, ascended Mississippi in search of hostile Indians. *On reaching mouth of Illinois, governor with his men and canoe left steamer, ascended stream and Desplaines, passing through Mud Lake into South Branch of the Chicago, making the trip from Green Bay in 13 days, averaging 60 to 70 miles travel each day.* (Abst. p. 305.) (Not in State case and not referred to in appellant's brief.)

Professor Andrew C. McLaughlin, head of department of history of University of Chicago (*not a witness in the State case*), had been professor of American history, University of Michigan, since 1891; before that assistant professor of history, three years; also in charge of bureau of historical research, Carnegie Institute, Washington. Twelve years associate editor American Historical Review, four of those years managing editor. Gives other connections. Author of Life of Lewis Cass and other writings. Has made special studies of methods used by historians; studied books on historical methods and teaches historical methods; called upon as editor American Historical Review to examine critical articles

sent for publication, the object in view being to discover whether historical methods were used. (R. 312–313.) With reference to Charlevoix's statement, says that the *inevitable conclusion* is that the Chicago & Desplaines River was *a known route at the time.* Speaks of *Heward's Manuscript* as a *source of the highest quality.* Says *article in St. Louis Enquirer* about thousands of boats being seen at St. Louis which had made a Desplaines passage appears to him to be *very influential evidence,* and that a paper in a small place would *not be apt to print something known to the citizens to be untrue. Regards Kinzie as a source of the highest quality.* Has written the life of Governor Cass and knows he made the trip referred to. (R., 322.) Says *Schoolcraft's statement that Illinois route had been used 160 years means Chicago-Desplaines-Illinois route. Has high opinion of Schoolcraft and doubts if any early writer knew the West better.* Speaks of *Forsyth* as evidence of the *highest source.* (R. 323.)

Referring to *Major Long's report* to Secretary of War, "that the portage is seldom more than three miles long in the dry seasons; but in the wet season boats pass and repass with facility between the two rivers," witness says it was an *official report and writer had no reason to color it.* Says that *Graham & Philips's* statement that in the spring boats of six and eight tons engaged in the

Mackinaw-Mississippi trade pass back and forth without having to make portage between Mackinaw and the Mississippi "*is very strong evidence, reaching almost a proof, that this route was a well-established route of communication.*" He says he is speaking of the passage standing alone without considering any of the supporting evidence. (Abst. pp. 325–326.) *Gives credence to statement* in Drown's history that *John Hamlin conveyed produce from Peoria to Chicago in Durham boats.* (R. 326–327.)

Anything coming from *Flint* has weight. Flint a well-known student of western conditions traveling very widely and published very widely.

From 1721 to 1825 "*The Desplaines River was used with apparently considerable frequency as a route of trade and commerce,*" presenting difficulties at some seasons, other seasons used with considerable ease, and was "a *well-known means of communication between the Lake region and the lower Illinois and Mississippi.*" (R. 327.)

Says of *Alvord* that he ranks with Turner and Thwaites as *among the best known writers and investigators of western history* (R. 328). Attaches *great weight* to the editorial from the St. Louis Enquirer by Thomas A. Benton. (R. 348-49.)

Dr. Reuben Gold Thwaites (*who was not a witness in the State case*) (R. 363) twenty-four years secretary and superintendent Wisconsin State

Historical Society, states historical connections, lecturer on American history, University of Wisconsin. My special field being period of discovery, exploration, and settlement of the basins of the St. Lawrence, Great Lakes, and Mississippi River from the earliest discovery to 1850. Obliged to make study of source material; sought access to all possible material, personally investigating official archives in Canada, United States, and Paris, numerous works published, and connection with some fifty historical organizations. Says "barque" meant a small sailing vessel and that was what LaSalle had in mind in speaking of a canal. (R. 368.)

Miami Indians scattered through Wisconsin and northern Illinois, but in 1670 began to settle around the St. Joe River. Others settled near Chicago about 1700. (R. 371-3.) Had been in Chicago a long time in 1721 (R. 374).

Shea's translation of Charlevoix has high standing among historians. Charlevoix, a trained navigator, speaks of Marquette and Joliet going up the Illinois and Desplaines Rivers to Chicago (R. 375).

No doubt about location of Mission of Guardian Angel at Chicago. (R. 375.) Notation in index to Jesuit Relations mentioning mission as on the St. Joseph River an error of one of twenty assistants in preparing index, which had about 280,000 references. (R. 378.) Discredits Lahontan (R. 381-

382.) Reviews historical testimony. (R. 384–394.) Says *Darby's book* and extract from St. Louis Enquirer *excellent source material, showing Chicago, Illinois route a well-established trade route.* Enquirer's article, while probably somewhat exaggerated, is valuable testimony; the editor, *Thomas A. Benton,* a *leading, if not the leading, citizen* of St. Louis, well-known and learned man noted for studious habits and tenacious memory, friend of Chouteau and other French traders, could not very well make a misstatement to readers who were well informed in regard to the matter (R. 395).

Refers to Hubbard's life and early trips. Says he made other similar trips in following years 1820–1825 with as many as twelve boats at a time (R., 400-401). *Says Hubbard's Narrative* must be regarded as "*conclusive proof without reference to other sources that the Desplaines River was frequently used for a number of years by the American Fur Company between Lake Michigan and the Mississippi*" (R., 403). *Governor Cass' letter shows the Illinois route to be well known* (R. 403–404). Likewise the suggestion made by John Kinzie (R., 404–405). Says Schoolcraft's reference to the Desplaines entitled to great weight; it refers to the Desplaines as a well-known and established route (R. 406). *Forsyth also shows Desplaines to be a well-established route* (R., 407–408). *Major Long's account* telling of the three-mile portage at seasons would be considered by historians as *con-*

clusive proof of the use of the route; he was an expert sent for the very purpose concerning which he was reported (R. 408–409). Graham & Phillips report also official; Phillips a judge of Illinois Supreme Court.

Gives weight to Keating, official chronicler of Long's expedition, who shows that the *Desplaines River was used by the Federal Government for the transport of supplies* (R. 410). *Childs* made the trip over the Desplaines, and his writings considered a primary source; "*Illinois in 1837*" and *Beck's Gazetteer acceptable contemporaneous evidence.* Publishers of former had a good reputation to maintain as publishers of guide books (R., 411). *Flint considered very accurate.* Mentions route as already used by boats of five tons burden. (R. 412.) Hoffman's Winter in the West, a conscientious record, refers to boats of 18 tons burden having actually passed over the intervening prairie at high water. (R. 413.) Gives "*The Navigator*" *high value* and has personally tested its accuracy. The reference in it to route convinces him that it was an accepted avenue of trade and travel. (R. 413–414.) Drown's history of Peoria shows use of investigation.

"*My opinion is that from the latter part of the seventeenth century to the first third of the nineteenth century men engaged in the fur trade actually and quite regularly passed up and down the Chicago and Desplaines Rivers in canoes and*

batteaux, Mackinaw boats, and other boats propelled by oars or poles laden with merchandise and furs; that these traders and travelers found a comparatively easy passageway by means of these rivers in the early spring and sometimes at other seasons; that during times of drought, such as often occurred in the summer and fall on most of the western portage routes between the Great Lakes and the Mississippi (as, for instance, on the well-known and much used Fox-Wisconsin portage route) the passage was sometimes difficult, but even then these fur traders appear to have succeeded in forcing their boats over the Chicago-Desplaines waterway, although perhaps they were obliged here and there to make some carriage at that time of the year, the length of the carriage varying greatly from season to season and from year to year according to the stage of the water." (R. 415.) *High opinion of Alvord, and says McLaughlin is one of the best trained historians in the country.* His judgment would have weight with every historian in the United States. (R. 416.)

With reference to the testimony of old settlers, says, "*There is a well-known rule of historical evidence that one piece of positive evidence is worth any quantity of negative evidence.*" (R. 474.) *He would look with considerable doubt on statements of old settlers as to what they remembered of what occurred 77 years ago.* Fact that wagons were frequently used to carry goods from

Chicago does not in any way rebut statement that the Desplaines River was similarly used. Horses were used between the Fox and Wisconsin Rivers. (R. 475.) Says that *Graham & Philips report* was made in 1819 *at the lowest stage of water known in this country.* (R. 476.) With reference to settlers coming into Illinois by wagon, Thwaites suggested incoming settlers *might not have had canoes or batteaux with them.* (R. 487–488.) Refers to statement of Peter Pond, a famous fur trader, in speaking of the *Fox River in 1773.* "*It took the most of ye next day to get about three miles with our large canoes.*" (R. 489.) *The Fox River had a fall of about 170 feet in 28 miles.* Thwaites basing his statement on Schoolcraft, says, "*Northern canoes such as fur traders used were 35 feet long by 6 feet wide and capable of carrying 4 tons* (R. 497); *pirogues larger than canoes; batteaux larger than the pirogues; they were 30 feet long, 8 feet wide, flat bottom, pointed bow and stern; rowed with six oars. Mackinaw boats, 40 or 50 feet long, flat-bottom boats, 12 feet wide, and 3 or 4 feet deep.* (R. 498.) *Durham boats about 60 feet long, 8 feet wide, capacity about 15 tons, drew about 20 inches of water.*" (R. 499.)

Hubbard discontinued using Desplaines in transporting goods and furs, *not because river was impassable,* but to reach Indians directly by horses instead of carrying them *in a roundabout manner* to subsidiary posts by boat and then to Indians on men's backs. (R. 504.) Indians at that time

largely on the northern rivers of Illinois. He notes that later when Hubbard wished to go to St. Louis he used Desplaines route. (R. 505.)

Great majority of men travelling upon the fur trade or as military expeditions not in habit of making records. Many unlicensed fur traders would naturally avoid making records; Jesuit missionaries obliged to make reports, which were forwarded to Paris. Great mass of material in French archives probably to be unearthed within the next twenty years, now that historical work is better organized. (R. 510–12.)

William Kramer, engineering expert, states qualifications. Is a deputy United States surveyor and familiar with the laws governing their actions, river always meandered up to point where navigation stops. Identifies notes of John Walls as official notes of the meander of the Desplaines River commonly taken as the best—as the original survey of the Desplaines River. Surveyors run the meander along the stream noting different objects; notes show surveyor continued northeasterly direction along the south line of Desplaines until he came to the township line between towns 38 and 39, which he marked "*Head of Navigation.*" He then crossed river and meandered down stream along the other side. (Note that Kramer's Exhibit 1 shows that "Head of Navigation" corresponds with point of contact (and at times portage) between Portage Lake and Desplaines.) (R. 520.)

Lyman E. Cooley, whom the evidence shows to be a most distinguished civil engineer and for exceptional reasons particularly and accurately informed in regard to the Desplaines River, testified for the Government. (R. 550.) His study of the Desplaines began in 1875; he *established a gauge at Riverside in 1886* and kept a practically continuous record of the stage of the water from that time down to *1910*, inclusive, to the time he testified. He made a topographical map of the basin and the minute and scientific study of the facts bearing on the sources from which the Desplaines was supplied, the character of the water course, and the causes which had resulted in a diminution of its natural flow. (R. 554.) The Desplaines River has "the appearance of an old water course or outlet from the Great Lakes in which the modern stream follows through remnants of an ancient stream of much greater magnitude, a succession of pools and wide expanses." Vegetable deposits indicate formerly a much greater depth now largely composed of numerous pools and connecting channels. His testimony and the other testimony in regard to the character of the river is summarized in the opinion of the court already quoted. He corroborates the historical testimony with reference to the stream's navigation and says that the physical conditions and topography "tend to show that the river was entirely competent for uses which have been related in regard to it." (604–605.) That the Mississippi and Missouri Rivers

have heavier currents than the Desplaines ever had. (607.) He also says, "From the physical standpoint it was entirely feasible to make such use as has been shown in the evidence of the historical experts. In fact, the physical conditions are better adapted to such use than any of the water trails that formerly existed between the Great Lakes and the waters of the Mississippi" (R. 612–613).

Data left from the past show that under natural conditions there was an uninterrupted navigation between the Chicago and Illinois Rivers for part of the year, during another portion portages from one to seven miles in length between the Chicago and Desplaines River, but after such portage boats could pass without interruption to the mouth of the Desplaines. (R. 113.)

He identifies various maps, profiles, references to a table of velocity prepared by the Deep Waterway Commission, and says that these are the maximum velocities, not the normal ones, yet even during extreme high water only the velocity at Joliet and at Marseilles is prohibitive. (R. 528.) Also, "A boat 8 feet wide, 32 feet long, with a depth of 30 inches sheer, 6 to 8 inches fore and aft—loaded draft of 20 inches and a block coefficient of 85 would displace about 11.3 tons." On a draft of 20 inches it would carry a cargo of 8 tons and a crew of six men with 900 pounds of supplies. It would carry a cargo of 5 tons on a draft of 15 inches. It would carry a cargo of 3 1/3

tons on a draft of 12 inches. (R. 634.) The shallowest point in the Desplaines during the low water line of 1883 was 15 inches. (R. 636.) No dams between Dam No. 1 and the mouth of the river. He explains the rule with reference to velocities and their relations to depth and slope. (R. 641.)

"Desplaines to-day from Dam No. 1 to mouth is a navigable river for boats drawing 3½ feet of water and up, depending on the stage of the water. With slight improvements as suggested 4½ feet and up." (R. 642.) Desplaines from Dam No. 1 in Joliet to mouth is "the connecting link in a water route extending 3,300 miles from Gulf of Mexico to the Gulf of the St. Lawrence." (R. 643.)

Desplaines River covered in 10 distinct surveys, reports, and projects, seven of which were official United States Government reports. The witness has read them all and says, "these reports uniformly recommend the improvement of the Desplaines River as the most available route for a highway between the Great Lakes and Mississippi Rivers." (R., 645.)

When gauge at Riverside read 13 feet there would be a minimum depth of 15 inches from Lockport to mouth, probably slight deficiency at Treat's Island and near the mouth.

Appellants solicited witness's services as expert engineer. Other parties offered him jobs as engineer in constructing dams over Desplaines and

Illinois Rivers, but he refused them all. (R. 790–1.)

Article introduced showing Rhone a steeper slope than the Desplaines. (R., 960.)

Table of certified gauge readings at Riverside introduced. (R. 961.)

G. A. M. Liljenerantz, assistant United States engineer, Chicago office, testified he has surveyed various rivers and harbors; read Government reports on improving Illinois, Desplaines, and Chicago Rivers, nine Government reports in all. (R. 648–650.) Especially examined same relative to matter of damages caused by proposed improvements; none contained any estimate of damages to riparian rights "if it was considered not a navigable stream, then there certainly would have been estimates," as engineer familiar with reports and procedure, would say that the engineers who made the nine reports already mentioned considered the Desplaines a navigable stream from Joliet to the north; examined reports for the special purpose of determining this point. (R. 652.)

Read from General Wilson's report, 1867; "it must be remembered that this river is not the exclusive property of those living upon its banks. It forms already an important link in a network of river navigation extending with its various branches through seventeen States in the Union." (R. 652.) Witness says reports of Worrall and Colonel McComb in 1875 agree that upper Illinois and enlarged canal from Joliet to Chicago

will afford the best route between Mississippi and Lake Michigan. Reports of Doran, 1875; Beneyaurd, 1882; Wisner, 1884; Comstock Board, 1887; Marshall, 1890, also agree on this point, and none contain estimates of damages to riparian owners; also the Ernst Board, 1905. Act of March 3rd, 1899, provided that estimates of costs for seven-foot channel from the upper Illinois to Lake Michigan be reported. (R. 667.) (No estimate of damages to riparian rights were included in the reports made pursuant to this act.)

D. H. Dugan, Sanitary District civil engineer, says 1901 low-water mark shown by gauge readings at Riverside, contained in House Report No. 263, was record low water. Gives depths of water at various places as shown by Sanitary District records. Minimum depth of river with augmented flow 3½ feet at low stage of water (R. 890).

B. F. Thomas, Cincinnati engineer in charge of Kentucky, Muskingum, and Big Sandy Rivers, had done work for War Department specializing in movable dams. Had examined Desplaines and says in present condition it could be navigated by steamboats without cordelling at all points save Joliet.

Horace S. Brown's work consists largely in removing rocks from rivers for Government; has done work on Mississippi, Ohio, and other rivers (R. 849). Ohio in places had a minimum depth of 15 inches, which was improved to about 3½ feet. Believes navigation of Desplaines from mouth to

Joliet is possible. Navigation could be greatly improved by removing bowlders. (R. 857.)

Montgomery Meigs, United States civil engineer in charge of Des Moines Rapids, says Desplaines from mouth to Joliet navigable by steamboats at present. About half of the boats on the Mississippi draw less than 3½ feet. (R. 882.)

Heilbron, civil engineer, took a trip on Desplaines from Joliet to Marseilles August 13, 1909, with the *Mississippi*, a steamboat about 35 feet long, 8 feet beam, inside draught about 15 to 18 inches, paddle wheel about 6 feet in diameter. Says Desplaines up to Joliet is a navigable stream. (R. 923.) Company operates two large boats and launch and several barges between Ottawa and lower Illinois on as little as 18 inches of water. (R. 925-927.) Witnesses Eidman, Clark, and Spencer took the trip with Heilbron. *Parry*, engineer, identifies certain maps and exhibits. (Pp. 544, 545, 964, 1026, 1028.)

Charles M. Coen, inventor of Coen's system of propulsion, which has been used in Miami and Erie Canal and around the Jersey City coast (R. 1000), states that in system described the propelling wheel, a screw wheel of the ordinary type, is located in a wheel chamber above the bottom of a boat as an extended dome so as to receive the full weight of atmospheric pressure from the outside on the wheel itself. That wheel chamber may be placed at any point in the bottom of the boat, allowing the bottom to be the lowest part.

Made a boat to float 100 bales of cotton for Fouch le Fevre, emptying into the Arkansas. Draft was 24 inches. Built boat on Yukon 110 feet long, 28 feet beam, draft 14 inches when loaded; house boat for Mississippi drawing 3½ inches; has built eight boats for the Miami and Erie Canal drawing from 9 inches to three feet, according to load. (R. 1002.)

Desplaines can be navigated by shallow craft. (R. 1006–1008.) Could build a boat that would carry a 50-ton load up and down the Desplaines. Boat would be 24 by 78, draft when loaded 18 inches. (R. 1009.)

In addition, the Government used the following evidence which had been used by the State of Illinois in its case:

George W. Reed, 84 years old March 2nd, 1908. Settled in Will County 1829. Father began construction of a dam about November, 1832. In about 1833 remembers seeing party going down Desplaines River in flatboat, singing, etc. They said they were going to a warmer country. (R. 2102.) Remembers some wheat which had been shipped at a point below getting wet. His brother brought home five or six bushels, and they dried it on quilts and sheets. (R. 2103.) Other testimony in regard to river prior to 1848 has already been referred to.

General Alexander McKenzie, Chief of Engineers, United States Army, in service 44 years, knows Desplaines principally through reports

and records. Says Desplaines is officially regarded as navigable stream under the law. There are a number of rivers in the south whose upper waters have as little depth as two feet upon which business is transacted. (R. 2110.) Says that from reports judges that river is not to-day capable of profitable commerce in the way usually conducted at the present time, but has before him records which indicate that it was at one time navigated by a certain class of boats (R. 2113-2114). When he said at hearing before Secretary of War Taft that Desplaines was not navigable, he meant not being navigated. Did not refer to actual legal conditions. Secretary's finding an impromptu affair; statement in regard to non-navigability " based principally on the presentation made by Mr. Snapp and the fact that Secretary did not have to decide whether it was navigable or not. That was not part of the decision " (R. 2117). In deciding navigability, department not influenced by existence of dams put in without permission. There were dams in the Desplaines River but no permission for them.

A letter from Mr. Oliver, Acting Secretary of War, dated October 28th, 1907, to Illinois attorney general, stating that the War Department considered the Desplaines and the Illinois between Lockport and Utica navigable streams.

Theodore E. Burton, Member of Congress since 1895, and Chairman of Committee on Rivers and Harbors since 1898, testifies that some rivers are

profitably navigated on a draft of 20 inches or less. Enumerates some of them (R. 2128).

Hillebrand's Exhibit No. 1 introduced. (R. 2172.)

George B. Fox, paper manufacturer, transports products over the Miami and Erie Canal, operated mills since 1868. (R. 2188.) Uses the Coen boat system, carrying 50 to 60 tons of freight on a draft of 2½ to 3 feet of water (R. 2189). Have 14 horsepower, are 18 feet length, 32 feet in breadth, built of iron and steel (R. 2191). These boats have caused the railroads to greatly reduce their rates (R. 2192).

Heyworth, an engineer in employ of the company, subpœnaed to bring the plans of the company, refused to do so on advice of counsel. Dam was to have been 18 to 22 feet high from the bottom of the river. He did some work on the dam before getting injunction. (R. 2196–7.)

Robert E. Orr testified with reference to Orr's Exhibit No. 1 and Exhibits 1 and 2. (R. 2203.)

Edgar Williams, civil engineer, associated with Mr. Cooley, testifies in regard to certain maps. (R. 2366–8.)

S. R. Van Sant, former governor of Minnesota, in transportation business on Mississippi River since 1857. Witness describes boats in use in his buiness having drafts of 14 inches, 18 inches, and up. (R. 2376.) On basis of hypothetical question, considers Desplaines navigable. (R. 2380.)

Wm. H. Zarley gives measurements of channel on each side of Treats Island. (R. 2386.) Numerous documents, including statutes, joint resolutions, engineering reports, estimates introduced in evidence. (R. 2393–2399.)

"List of Merchants' Steamboats Navigating on the Mississippi" shows four steamboats of 24 inches draft, having a tonnage of from 52.25 to 83.99 tons. (R. 2402–2407.)

APPELLANT'S EVIDENCE.

By consent the appellant introduced an abstract of a part of the evidence which it had used in its suit with the State of Illinois, as follows:

Depositions of Alexander, Williams, Meyers, Gurney, Munch, Boyne, Stevens, Adler, Burt, Layton, King, Comstock, Keene, Field, Bowers, Chamberlain, Hammond, O'Brien, Collins, McCowan, Killmer, related to recollections about early condition of Desplaines River and effect of such testimony has already been referred to. (R. 2485–2600.)

Robert Moore, consulting engineer, visited site of dam and estimates cost of riprapping banks of river. Says, judging from blue print, Desplaines was hardly a navigable stream in a commercial sense. (R. 2605–6.)

Bewley, steamboat captain, has navigated the Ohio on as little as 24 inches of water; a river which has a fall of 38 feet in 15½ miles, all of which occurred in stretches aggregating 6½ miles,

could not be navigated. (R. 2623.) Saw the Desplaines and thinks it is not navigable for useful purposes of commerce. (R. 2621.)

Pryor, steamboat pilot, does not think Desplaines a navigable stream. (R. 2629.) Gasoline not adapted to navigation of a rapid stream. Never saw or heard of a boat being operated on 16 or 18 inches of water, loaded or unloaded. (R. 2631.)

Mills, a farmer near Treats Island, used to own the island. Says only about five or six inches of water in river in summer. Remembers a fence in river up to 1871. Cross-examination made contract to sell to Mr. Munroe in 1904 and made transfer a few weeks ago. (R. 2642.)

Cornelius, Collins, Copelantz, Richards, Ellwood, all testified in regard to question of early navigation.

Whisler, steamboat man on Mississippi since 1865, saw Desplaines River twice and does not think it navigable.

McCaffrey, steamboat man since 1865, saw the Desplaines recently several times, does not think it navigable. Never navigated on two feet of water. (R. 2667–2668.)

Rambeau, McCullough, Doyle, and Mason, river steamboat pilots, have seen Desplaines and do not think it navigable.

L. L. Wheeler, civil engineer, thinks Desplaines was not navigable for commerce carried in boats.

(R. 2694). Is not familiar with the Desplaines since the drainage flow was turned in.

Snyder identified a map showing meander line of the lands of the canal. (R. 2719.)

Patrick Fogarty owned a quarry below Joliet. Says you could navigate the Desplaines in a boat drawing two or three feet of water from Patterson's Island to Treat's Island, but not below, except in a rowboat. (R. 2725.)

Brockway, president of Joliet, testifies as to low water in parts of the river. (R. 2731.)

Johnston, civil engineer, United States Engineer Corps, 1877–1886 employed by Economy Light & Power Company testifies in regard to gauge readings, slopes, etc. (R. 2739–2752.)

Munroe, Joliet real estate dealer, testifies in regard to low water. Does not think the river at present navigable.

Gray, engaged in steamboating, says Desplaines River not navigable for useful commerce. On cross-examination stated he carried 50 tons on steamboat with only two feet of water. (R. 2784.)

Counsel read from Parkman's La Salle and the Discovery of the Great West. (R. 2809.)

December 21st, Tonty, Membre, and party went from Fort Miami to Chicago and up a branch of Illinois (R. 2811). Letter from Father Membre tells of Desplaines being frozen in January and party dragged canoes over ice for 30 leagues. (R. 2815.)

Various acts of Congress, messages, reports introduced by defendant, abstract and brief in case of *Adam* v. *Druley*, opinion *State* v. *Economy Light & Power Company, etc.*

APPELLANT'S EVIDENCE TAKEN IN THIS CASE.

J. W. Woermann, civil engineer, had been employed by Government on Missouri River survey. Had charge Chicago River, 1896–97. Was in charge of construction work on appellant's plant. Investigated Desplaines; took gauge readings. (R. 1034.) Introduced copy of profile alleged to have been made in Wilson's survey, showing water around Treats Island as shallow as six inches. Table by Guthrie showing artificial additions to Desplaines from 1860–1867 through Bridgeport Canal pumps. Table showing rainfall, 1851–1895. (R. 1049.) On basis of Cooley's Riverside gauge figures, there would have been no water in Desplaines in natural condition in 1867. (R. 1050.) River little affected by deforestation or habitation. (R. 1052–1053.) Gives estimate and number of days in different years when Desplaines was seven-tenths of a foot deep or less. (R. 1057.) Made profile of Desplaines. (R. 1061.) Gives number of feet per mile of falls in certain parts (R. 1062) and gauge readings. Says that not over 9 days when the river at Riverside Bar was over $1\frac{7}{10}$ feet deep (R. 1063); no days in 1888; 50 in 1889, etc. Cooley's table of gauge readings has

little value on question of navigability. (R. 1065.) Does not show consecutive days. Ordinary conditions which would produce no discharge at Riverside would have same effect down the river. (R. 1069.)

Letter mentioning a gauge reading by Post and Paul and also by others showing Desplaines had slight flow in 1829. Other passages to same effect. (R. 1074.) Mostly Chicago sewage during dry season.

Attacks Cooley's accuracy. Says many statements referred to Desplaines not in a state of nature, but after proposed enlargement. Only feasible way to navigate Desplaines is to build a canal or dam. (R. 1080). Low-water discharge of Desplaines in 1883, 800 cubic feet per second. (R. 1081.) Flood conditions like 1892 only once in five or ten years. (R. 1086.) Introduces a map intended to show the streams and canals now used for purposes of transportation. Map does not contain Desplaines. Thinks Desplaines not navigable for purposes of useful commerce. Thinks Illinois River north of La Salle not navigable for useful purposes of commerce prior to 1900, "because of the dam at Marseilles, which was not provided with a lock and because of the steep rapids just below the dam and because of other shallow points above and below Marseilles." (R. 1089.) River navigable from La Salle to Ottawa. (R. 1088-1089.)

Cross-examination, Illinois River between Ottawa and La Salle navigated a year or two ago. "If there was a canal along the Marseilles Rapids, boats would go to the mouth of the Desplaines in low water with same facility that they reached La Salle before improvement of lower Illinois with increased flow from Sanitary District. Could probably navigate that part of river as easily as lower part of Illinois in its natural condition. By navigable stream I mean one which was or could be used for purpose of carrying on useful commerce in the way it is usually carried on. * * * If other conditions were favorable, river having more than a foot of water could be navigated for purpose of useful commerce. Not absolutely necessary that river should be absolutely free from snags and bowlders. If the river had a fall in it which is absolutely impossible to navigate, but had stretches above and below with sufficient water, whether or not I would consider that a navigable river because of that fall would depend upon the proportion of unnavigable fall or rapids as compared with portions navigable * * *. Recall no official documents describing Desplaines between Dam No. 1 and mouth as a nonnavigable river, nor do I recall any which calls it a navigable river." (R. 2074–2075.)

Introduces report of hearing before Taft already referred to. (R. 1937.) Introduced table of gauge readings purporting to show number of days when there was no discharge and number

when there was six inches depth or less. (R. 1939–1947.) Witness now an assistant to divisional engineer, United States Army, receiving $300 a month. Employed on the Missouri River 1890–91. Worked on Hennepin Canal and helped dredge Chicago River 1896. Worked on Illinois-Michigan Canal 1897. Constantly employed by Government from 1891 to 1902 under district engineer. (R. 1954.) 1902–1905 worked under the Ernst Board on project for 14-foot waterway from Chicago to Mississippi. Had access to sanitary district data. (R. 1955.) Private practice 1905–1908; expert witness in number of lawsuits against sanitary board. Was first employed by Economy Light & Power Company in January or February, 1908. Took charge construction work July, 1908, but was employed by its chief engineer July, 1907. Received $200 a month. (Colonel Bixby's letter March 27th, 1906 (R. 2871), shows that witness was then in Munroe's employ, and if distinction is made between Munroe and appellant, report of Taft hearing February 3rd, 1907, shows Woermann present among others representing appellant.)

Witness believes case of *People* v. *Economy Company* begun December 30th, 1907. At that time earth portion of dam at north end had been erected. Only portion extending into river was cofferdam which extended into river at upstream corner probably 150 feet. About 150 feet from river bank. At the cofferdam river was 250 to 300

feet wide in low water, 2,000 feet in high water. Construction on dam begun on right bank. Witness is receiving $300 a month as a Government engineer; has received about $800 or $1,000 as an expert in this case for appellant. (R. 1961.)

Discusses various dams, bridges, etc., which were or had been obstructions to navigation in the Desplaines. (R. 1969–1974.) In 1904 at Jefferson Bridge discharge had volume of 22,000 cubic feet per second and current of 7 4/10 miles per hour (R. 1965.) Shallowest parts of Desplaines at mouth and Treats Island. (R. 1965.) No particular difficulty for a skiff at either point. In July, 1889, witness went down the Desplaines from Adam's Dam to La Salle in a skiff. In 1904 went from Joliet to La Salle in a skiff. The boat was always in the water. Passed Treats Island and through the channel at mouth of river. Don't think they struck bottom anywhere. Kept sharp outlook to keep boat from turning over in swift water; was in the spring. (R. 1968.) Witness describes Jefferson Street Bridge, Rock Island, railroad bridge, Dam No. 1, and certain other past and present obstructions to river. (R. 1980–1983.)

Witness says slope of Desplaines at mouth as shown by profile 1867, one foot per thousand. Average depth across stream 3/10 foot and about 4/10 foot in the deepest part. (R. 1985.) Average velocity would be about 4/10 of a foot per second. Discharge on 180-foot width, which was the narrowest point in 1867, would be about 21

feet per second. Treat's Island depth of 8/10 of a foot in left-hand channel. In the rapids below Joliet, the shallowest point is 5/10 or 6/10 of a foot. (R. 1986.) Admits Wilson's profiles 1867 not extremely accurate, as measurements of slopes were not taken near enough together. (R. 2009.)

Counsel for Government read extracts from report of 1867 to show that survey was taken when waters in Desplaines and Illinois were extremely low (2010–2011).

Witness says, based on Johnston's table prepared for appellant, a gauge reading of 12 1/10 feet would give a volume of 116 second-feet, and at 11 4/10 feet there would be no water going over the bar at Riverside. Rainfall in 1867, 22 inches, whereas average from 1843 to 1910 was about 33 inches. (R. 2012.) Average dry river flow on Desplaines from Riverside was 13 second-feet; only 50 second-feet after waters of Dupage were added and 650 second-feet after Illinois and Michigan Canal sewerage waters were added (2014). Thinks deforestation had little effect on Desplaines. Counsel for Government reads extract of Professor Bain, University of Illinois, to contrary effect (2015). Also from Wilson and Gooding's report of 1868 (2016). Witness says reputation of Wilson and Gooding among engineers is good. Newspaper editorials of 1889 as to proposal to give water power to riparian owners as the price of their consent read into the record by counsel for appellant (2020–2021).

Witness intimates flow of Desplaines increased by inhabitants' use of artesian wells. (R. 2024–2025.) In regard to readings at Riverside gauge, witness took April 1st to December 1st as period of navigation. Admits ice generally goes out about March 1st. Some years in the latter part of February and March there is little or no ice. Supposes Illinois and Michigan Canal used after December 1st when there is no ice (2027).

Reads extract from Cooley giving low-water volume at 256 feet per minute in 1887 and 339 feet per minute in 1879. (R. 2031.) Also quotes Cooley as saying during large part of year Illinois River shallow, sluggish at times, stagnant, unhealthy, and unfit for profitable navigation (2033). Woermann says average flow of Jackson Creek 610 feet per second (2034). Flow at mouth of Desplaines would be 810 second-feet, assuming a drainage area of 1,026 square miles to and including Jackson Creek. Soundings of river around Treats Island were given on Marshall's map, depths from 1 to 3 feet. (R. 2038.) Editorial Daily News, December, 1888, states that village towns had a right to abate nuisance created by sending sewage down proposed canal.

Witness cross-examined on accuracy of his profile from Lockport to mouth, which he said was copied from Seddon's profile, whereas the latter only went to Joliet. Counsel for Government points out that navigable waterway from Chicago would be by drainage and ship canal to Joliet and

then down Desplaines to Illinois. (R. 2041–2042.) Woermann prefers Johnson's tables of Riverside gauge readings rather than discharge curve of Sanitary District, because he states latter was prejudiced against appellant. (R. 2046.) Woermann says fall between Romeo and Lake Joliet is 77 feet in 11 miles, and depth would be about 15 inches when gauge at Riverside was 13⅒ feet and flow there was 550 second-feet. Flow at mouth of Desplaines would be more (2047).

The difference between Prof. Cooley's table of gauge readings and the witnesses is that the latter omitted from December 1 to April 1 and Prof. Cooley included the whole year.

Usual depth of boats on western rivers 3½ to 4½ feet. (R. 2052.) Usual low-water period on Illinois 60 to 90 days, according to Wilson & Gooding's report, 1887. Woermann states period has been as long as 150 days. (R. 2052–2053.)

Ohio and Mississippi Rivers also have low-water periods, but navigation not interrupted to the same extent. (R. 2053.)

"As I stated a few moments ago, all of the Western rivers have periods of low water as compared with an average or flood flow; and I am also willing to admit that useful commerce may be entirely interrupted for two or three months in the fall, September, October, and November; and if the stream was navigable during the months of April, May, June, July, and August I would not say that it was not navigable because it was inter-

rupted for three months in the late summer or early fall." (R. 2054.) If it were also interrupted in May, June, July, and August, would not consider it navigable stream. (R. 2054.) Witness apparently assuming no navigation between December 1 and April 1.

Witness says 1867 profile represents usual low water flow in state of nature. Said Wilson and assistants made thorough soundings. (R. 2058.) Counsel for Government criticizes profile for showing fall of two feet in Lake Du Page. Witness thinks that a mistake of draftsman. (R. 2060.)

Witness quotes Cooley as stating low water volume at Riverside 1887, 4.27 second-feet. (R. 2063.) Witness says profiles of Marshall, Seddon, and Cooley practically the same. (R. 2072–2073.) Charter requires Sanitary District to turn in 20,000 cubic feet per minute for each 100,000 people or 400,000 cubic feet. (R. 2074.) Illinois River between Ottawa and La Salle navigable. A canal along Marseilles Rapids would extend navigability to mouth of Desplaines in low water without addition of flow from Sanitary Canal. (R. 2075.) Government introduced table showing average number of days between 1847 and 1896 when ice at Chicago made it necessary to close the river to navigation. Average number was 51. Mr. Woermann omitted December 1 to April 1, or 121 days, from gauge readings. (R. 2077.)

Woermann quotes extract from Moore, of United States Weather Bureau, to show deforesta-

tion has little or no effect on streams (R. 2080-2081). Aside from Army officers, only one assistant engineer receives more than he does, and only 12 get as much as $300 a month (R. 2086). Introduces table of average monthly rainfall near Peoria. (R. 2087.) Similar table for region above Riverside.

Appellant's historical expert, Judson F. Lee, 30 years old, specializing in history, teaching in Lewis Institute for about two years has studied history of Illinois and early transportaton problems, wrote thesis on this point. (R. 1091.) Has investigated influence of rivers on population (R. 1093). Early settlements were along rivers in Middle West. Settlers traveling down Ohio (R. 1095), Tennessee, and Mississippi Rivers. Early settlers in Illinois needed a market so urged inland improvements. Reads article from Pooley, Wisconsin University student, and extract from book by Ellen Semple to support the conclusions. Referred to history of Illinois by Governor Ford, which mentions various rivers along which people settled, but did not mention Desplaines. Other works read to show early settlers used rivers.

Extract from Turner's American History states early settlers' camp along rivers and timber lands. Says, when possible, settlers came by way of rivers. (R. 1108.) No instance where Desplaines was so used. Read from Hubbard to show Chicago only small village in 1818, and northern Illinois almost without population. Schoolcraft tells of trip

from Peoria to Chicago without finding a single house between. (R. 1112.) Article by Edwin Gale, early Chicago settler, states there were few white people in Illinois up to 1830. (R. 1113.) Ford's History of Illinois says a few small steamboats went up the Illinois as far as Peoria, sometimes farther. (R. 1115.) Little trading done.

Other articles to show Chicago's growth did not begin until 1830–1840. Exports from Chicago in 1840, $228,635. (P. 1119.) Commerce came to Chicago from interior by wagon (R. 1122) not by Desplaines. Reads from Chicago Weekly American, of 1842, to show that numberless wheat wagons came to town every day (R. 1123) from as far as 200 miles away. Reads extract from advertisement May 7, 1836, of wagon transportation from Chicago to Illinois River. (R. 1127.) Account by Woodruff, author of History of Will County, says that before opening of canal goods were transported from Chicago chiefly by ox teams and mail carried by stagecoach. Report of Canal Commissioners, 1825, says Desplaines is unnavigable in low stage of water (R. 1136), and urges that a canal be built.

Bucklin, engineer for Illinois-Michigan Canal, some time in 1818–1834 recommended the use of reservoirs to supply the canal. Articles in Chicago Tribune, Chicago Democrat, showing increase in trade after opening of canal. (R. 1140.) Stage coach from Chicago to Ottawa mentioned several times in different accounts. (R. 1143.)

Peoria Register, 1837, mentions fact that water communication between Illinois River could be opened by means of a canal. (R. 1148.) Ads. of transportation company carrying to and from Chicago by stage introduced. (R. 1149.)

History of Grundy County mentions use of Indian trails to Chicago. (R. 1153.) In 1834 road laid out following Indian trail. (R. 1155.) History of La Salle County shows fall of price of lumber, wheat, etc., as result of canal transportation. (R. 1158.)

Witness studied under Professors McLaughlin and Merriam, University of Chicago, the art of criticizing historical sources. (R. 1159–1160.) Criticizes Keating's account of early trip. Compares it with Schoolcraft's account. (R. 1160–1162.) Introduces extract from statement by United States engineer to support Schoolcraft. (R. 1165.) Says Keating's statement as to Desplaines based on hasty examination when river was high. Says Child's account based on high-water conditions. (R. 1166.) Says Morse Gazetteer statement that Desplaines was navigable stream was based on Hutchins. (R. 1168–1169.) Criticizes statement in Woodruff's History of Will County that steamers plied up to Chicago. Says nothing else to corroborate this. (R. 1170.) Hutchins never in Illinois (R. 1171), but based statements on Kennedy, who never got higher than mouth of Desplaines. (R. 1173.)

Says Darby never saw Desplaines. (R. 1174.) Says Darby's report was based on an editorial in the St. Louis Enquirer, the writer of which had for years advocated a lake to gulf deep waterway. (R. 1175.) Quotes several authorities to show small population in Illinois with no need of traffic mentioned in editorial. (R. 1179–1181.) Extract to show little lake commerce as early as 1840. (R. 1183.) Extract from Maj. Long showing necessity of a canal. (R. 1184.) He suggested Desplaines needed but little improvement to give canal service. Criticizes Alvord's translation of Charlevoix. Omitted the statement that "as the Desplaines is but a brook in this place, I was informed that at that time of the year I should not find water enough for my canoe."

Quotes Schoolcraft as saying Desplaines was so shallow that his party had to finish their trip on horseback; thought that a canal of 8 or 10 miles, while it would continue at all seasons, the connection which already exists between Chicago and Desplaines River would fall far short "of the grand purpose." Witness criticizes Imlay and says he relied on Hutchins's observations. (R. 1195.) Examines accounts of Gurdon Hubbard, who made several trips on Desplaines; mentions difficulties in making passage with loaded boats. (R. 1179.) Says while Maj. Long's statement as to navigability of the Desplaines would have considerable weight on account of his official position,

they should not take precedence of the evidence of the men who used the route. (R. 1200.) Does not say that he did not use the river, but says there was no evidence that he did has come to his attention.

Discusses Graham & Philips report and emphasizes the wagon road used in dry seasons. The witness thinks it was due to incoming settlers rather than to traffic to and from Lake Michigan. Northern Illinois not yet settled. Discusses Governor Cass's trip and says Cass took it not because it was well known but says because he wanted to notify the frontier posts. (R. 1203.) Gives opinion on various trips taken on the Desplaines, which were mentioned by Government witnesses. (R. 1204, etc.) Eleven men took such trips and wrote about them. Also mentions those who went over the route, but did not use them. Opinion is that men did not engage in trade on the Chicago and Desplaines Rivers as a regular thing between 1783 and 1825 (R. 1206) and that Desplaines in the natural state was not navigable for purposes of useful commerce. Head of navigation always referred to as on the Illinois (R. 1207) (says later newspaper advertisements referring to " head of navigation " as being the upper Illinois River probably meant the head of steamboat navigation). (R. 1318.)

On cross-examination witness says McLaughlin has good standing among historians; as a critic of historical material is one of the best in the country.

Conclusion subject to same criticism as anyone else's if not accurate. *Dr. Thwaites has always had a good standing.* Cross-examination brings out Lee's work as teacher more along the line of political science and economics than of history. (R. 1211.) Never taught history of Northwest Territory. Says when two historians disagree you should go by the one who prepared most thoroughly. (R. 1214.) No legal training. Does not know what would be legal evidence. Says McLaughlin took a law course at Michigan. (R. 1215.) Thinks Thwaites and Alvord may be careful critics, but is not sure. *Admits that million of events happen where only a few affirmative records of the event will appear.* (R. 1219.)

Has met Ellen Semple (whom he quoted above) and says her work on American history is considered to be very carefully written; Government then had witness read an extract from her book mentioning the use of the Chicago-Desplaines-Illinois route by early fur traders. (R. 1222.) Lee had not noticed this nor a map in her book showing the Chicago-Desplaines portage. (R. 1223.) Other extracts from her work were read showing early commerce over this route.

Asserts St. Louis editorial mentioning thousands of boats coming down the St. Louis is incorrect. (R. 1229.) Did not investigate work of different fur companies or make any special examination with reference to early fur traders. Says fact that early settlers did not come in by

Desplaines is strong though not conclusive evidence against its navigability. Says fact that there was not a good harbor or transportation facilities between Chicago and east was a good reason for the paucity of settlement in Desplaines region. (R. 1243.)

Counsel for Government had witness read a passage from Hulbert showing Desplaines-Illinois was a favorite route; also similar reference in Schoolcraft (R. 1245), although he had earlier mentioned taking a 30-mile portage in summer. Counsel explains this long portage by showing (R. 1247) that in 1849, for example, Ohio River was too low for transportation in the fall and Schoolcraft's journey might have been in a dry season. He mentioned (R. 1249) that it was a sultry season, being August, 1821. Keating made similar statement concerning 30-mile portage in very dry seasons and witness had criticized Keating's reliability. (R. 1253.) Witness knows of Professor Bourne, of Yale. Would give great weight to his word. Latter had high opinion of Keating. (R. 1254.) Witness had not read all of Pooley's thesis nor examined it carefully. (R. 1255.) Same is true in regard to Ford's History of Illinois. (R. 1258.) Also indirectly admits that neither extract tends to show whether upper Illinois and Desplaines were navigable or not. (R. 1259.) Had not read thoroughly works of Benton, Ford, McCarthy, and other authors from whom he quoted (R. 1261) and had not in-

vestigated their authenticity. He used Turner's New West as reference book. Said it had a reputation for accuracy, but he did not test it. (R. 1265.) Has read DuPratz, but has not examined him critically. Says Carter's Illinois Country is a reliable work. Carter in his preface expresses gratitude to Professor Alvord for his assistance, and mentions the latter's intimate knowledge of the field. (R. 1267.)

Witness thinks Keating inaccurate, as he said Chicago had poor soil and corn would not ripen. (R. 1270.) Greater weight to Schoolcraft than to Keating. (R. 1271.) Featherstonehaugh, an early writer, also criticized Keating, and witness gave considerable weight to his statement without examining passages in Keating very closely, but maintains Keating was a careless observer. (R. 1279.) On question of whether name of Indian tribe was Dacotah or Nacotah, several historians agreed with Keating, none with Featherstonehaugh. (R. 1281.) Counsel for Government had witness read from Major Long's report supporting Keating's statement that it was difficult to raise corn on Chicago soil. (R. 1297.) Witness admits that he does not know anything about the question of raising corn on Chicago soil in the forepart of the nineteenth century, or whether corn or maize was meant.

Witness not now sure Hutchins based statements on Kennedy. Admits Hutchins was at present site of St. Louis in 1776. (R. 1299.) Made

no investigation to find out who Kennedy was. Did not know whether he ever saw Hutchins after he made his journey in 1773. (R. 1302.) Made no exhaustive study of Darby (R. 1310), who gave great weight to St. Louis Enquirer editorial.

There was some early fur trade from Canada through Chicago. (R. 1313.) Heward, Perrault, and Hubbard used the Desplaines route. Relies on statement of Graham and Philips that " during half a year Desplaines does not contain enough water to float a boat." Says Hubbard did not " navigate " Desplaines, because he had to put his boat on rollers. (R. 1316.)

Did not have in mind when he drew his conclusion as to navigability of Desplaines the report of the select committee of the House of Representatives which stated that repeated and uninterrupted passages had been made from the river into the lake. Government had witness read from Smith's Life and Times of Louis Cass, an account of Cass's trip up the Desplaines with eighteen men in a canoe in July, 1827, in which the author refers to the fact that boats pass from the Desplaines into the Chicago to Mud Lake. (R. 1321-1323.)

Witness remembers no affirmative statement that Desplaines was not used by boats similar to those on the Fox, Wisconsin, prior to the use of steamboats. (R. 1323.) Says Charlevoix did not use Desplaines. (R. 1324.) Gives greater weight to Charlevoix than to Darby or Keating, although

he has not checked up Charlevoix carefully (R. 1325), and Charlevoix did not pass over the route, but his testimony has as much weight as if he had (R. 1327). Recalls Hubbard had a hard time going down the Desplaines and made a trip up the Desplaines, but witness did not remember so much about that trip. Says Desplaines in natural condition was not navigable for use of commerce. Knows little about the natural condition of the river. (R. 1330–1331.) Would call the fur trade useful commerce. Gives his reasons for thinking the Desplaines not navigable. Upper Illinois known as head of navigation; then considerable talk of building canal. Says no evidence that Desplaines was ever used for purposes of useful commerce regularly. (R. 1339.) Perrault, Heward, and Hubbard were the only three who used it for commerce.

Redirect examination: Wrote his thesis before he worked for the company. Read several extracts showing settlers were going to southern Illinois by the Wabash River in early part of nineteenth century. (R. 1342.) Most products from Illinois shipped down to New Orleans or St. Louis. Carter's Essay says French were responsible for England's failure to develop trade in Illinois Country. After cession of lands to England (R. 1345) goods chiefly went to New Orleans, a Spanish port. (R. 1353.) Says early map in Pooley's book showed as late as 1830 settlers following rivers, but had not got farther up the Illi-

nois River than Lewiston. They did not get farther up the Mississippi River than Quincy. (R. 1354.)

Says when Schoolcraft spoke of "the grand purpose" did not necessarily have in mind large boats. (R. 1355.) Extract from St. Cosme to effect that there was no water in Desplaines except in the spring. (R. 1360.) Says LaSalle made similar statement. Quotes from Turner to show settlers came along river when possible and most commerce from Illinois passed down Mississippi. (R. 1366.) Says Major Long inaccurate observer when he said ripples and rapids in Desplaines appeared only in low water, while at mouth of Vermillion there were formidable rapids. (R. 1369.) Says Hutchins lived in Illinois about 1770–71.

Counsel for Government had witness read quotation from Governor Gage, used by Carter. Mentioned Canadians as using northern routes for trade. Witness says Gage meant only trade of the far upper Mississippi. (R. 1380.) Also had witness read extract from Illinois Historical Collections, volume 2, saying great majority of residents in Cahokia and other Illinois towns came from Canada and continued to engage in trade in Illinois. (R. 1387.) Admitted Heward visited Cahokia in 1790.

Counsel for Government had witness read written authority to trade with savages in Cahokia in 1782, given to one Jean La Croix. (R. 1393.) Also

had witness read letter from Thomas Bentley in 1780. Bentley an early fur trader at Montreal. (R. 1395.) Also a memorial dated December 8th, 1784, from Francois Carbonneaux, of the Illinois country, "agent for the inhabitants thereof," speaking for "the inhabitants to the number of 400 families, exclusive of a like number at Post Vincent," and asking the United States Government to establish a valuable commerce which is now wholly carried on by British subjects from Canada. Also a letter from Joseph Parker to President St. Clair, dated October 2, 1787, complaining that traders from Michilimackinac and Detroit engross all the fur trade. "The traders in St. Louis and St. Genevieve on the other side of the Mississippi have not less than 100 traders who are supplied with goods annually from Michilimackinac and Detroit and sent down to Kaskaskia and Cahokia and the Spaniards come over and purchase them. Each trader purchases on an average from 30 to 40 thousand livres annually, which is $6,000." Also has witness read petition of Pierre Langois, of Kaskaskia County, of Illinois, 1786. Refers to a company "of the subjects of Great Britain" operating from Michilimackinac, who were getting possession of the commerce and have established at Cahokia, a trading post. Witness says that from this and other statements referred to in the evidence "should think there was an indication that there was some little commerce from the period 1782 to about 1817 that went by

way of St. Louis to Cahokia, Kaskaskia, and Canada; does not know how much. (R. 1398.)

Milo M. Quaife, for appellant. Thirty years old. Teaches history, Lewis Institute. Graduated Iowa College in Grinnell; 1903 taught in Sheffield (Ill.) High School. Following year pursued graduate studies University of Missouri, history and political science, M. A., spring of 1905; 1905 to 1908 graduate student University of Chicago, taking work in history and political science. History, major field. Doctor of philosophy, Magna cum laude, spring of 1908. Since fall of 1908 teaching at institute.

Published a monograph on "The Doctrine of Nonintervention of Slavery in the Territories," privately printed in 1910, which was his doctoral thesis; edited diary of President Polk, published in four volumes. Favorably reviewed.

May 18, 1911, read paper before Mississippi Valley Historical Association on the Chicago massacre. June, 1909, delivered lecture before Chicago Historical Society on "The Obscuration of James K. Polk." Two articles for publication in McLaughlin & Hart's Cyclopedia of American Government on Wilmot Proviso and Nonintervention with Slavery. Several months engaged in preparing history of Fort Dearborn. (R. 1399–1401.)

With reference to historical authors, states as follows: Beck rests statements on Graham and Philips. Seemed to have used other reports in general discussion. Adds nothing to Graham and

Philips. (R. 1401.) Cass's letter: Cass being able man and well informed, is worthy of consideration. Makes general mention of channel of trade by way of Chicago and Illinois. No specific mention of Desplaines. "When usable, the Desplaines would probably be used in connection with this route," other times not. Quotes Charlevoix's letter, "but as this river is only a brook in this place." (R. 1405.) Fact that Charlevoix mentions Chicago-Desplaines route as one of two routes of travel implies nothing as to navigability. Charlevoix told Desplaines would not float a canoe at that season, which was September, when witness states large part of the Desplaines dry. (R. 1408.)

Extract from Child shows "the canoe could and did go up the Desplaines in a time of flood." (R. 1409.) Darby not well acquainted with geographical conditions of this region. (R. 1411.) Careless in saying Enquirer's editorial settled problem of waterway. Thinks editorial prejudiced (R. 1412–1413) and by one not well informed as to river.

Most trade to Canada by way of Wabash (R. 1414) or on horses. Thinks Kenzie used horses in trade.

Extracts referring to period of 1778–1790, mention Wabash as principal trade route between western posts and Canada. Another passage says before cession of Illinois territory to English, trade in Illinois conducted by Canadian and Louisiana merchants; afterwards English mer-

chants started a commercial war for trade of the Ohio and the Mississippi, and had one decided advantage in being able to deliver goods cheaper than they could be delivered by way of lakes and the Wabash or up the Mississippi. (R. 1415–1417.)

Quotes Carter a teacher in the Illinois College at Jacksonville, graduate student of University of Illinois in work which won Justin Winsor prize, 1908, "Trade conditions in Illinois country, 1765–1775." Footnote quotes Hutchins as showing "during the French régime the French-Canadians traded extensively in this region." Carter says English found French fur traders hard to dislodge. Extract contains statement that surplus products of soil were floated down New Orleans, and that all flour for the lower country came from Illinois. Notes plans of Gage to invade Louisiana for purpose of controlling trade. (R. 1419–1423.)

Extract from manuscript by Jacob Varnum mentions trade falling off one-half in 1818. (R. 1425.) Memoirs of early days of Mackinac Island, by Elizabeth Baird, born there in 1810, tell of trip to Chicago in 1816. Captain could get no cargo for return trip. (R. 1429.) Says Graham and Philips report shows boat sometimes used Desplaines, but larger part of time it could not be used. (R. 1430.)

Drown and Dupratz not reliable. (R. 1433.) Latter said first travelers came by Illinois, when they came by Fox-Wisconsin route. (We note

they returned by the Illinois-Desplaines River.) Evans gives little light on use of Desplaines. (R. 1435.) Quotes from article by Prof. Craig, of Purdue University, on Indian town Ouiatanon, Ouiatanon, Indiana, which says, that while it is probable that fur traders visited this State between 1671 and 1683 it is probable that trading posts were not established until the Indian Confederacy was broken. (R. 1438.)

Quotes various extracts from different writings to show that on account of hostility of Iroquois Indians, portages from Lake Erie were little used until the eighteenth century, but later became of great importance. (R. 1442–1444.)

Quotes Andreas as saying that a route (which witness identifies as the Desplaines), became so dangerous soon after the opening of the 18th Century that it was gradually abandoned and finally almost forgotten—this on account of the long war between the Illinois and Iroquois. (R. 1444.) "I call attention to the citations from Andreas, showing that beginning about 1700 the use of the Desplaines route by the French, which had been comparatively frequent prior to that date was abandoned, owing to the wars which have been referred to in that connection." (R. 1450.)

Kinzie was in Chicago 1804 to 1812; Forsyth, his partner, was at Peoria. He relied mainly on the horses. 1812 to 1815, Kinzie's establishment was abandoned. (R. 1450–1451.) Witness says

this brings us to approximate date of the editorial, " and it is on the foregoing line of reasoning that I base my conclusion that the interpretation that thousands of boats such as were described in the editorial passed over from Lake Michigan to the Illinois in that period, is strained and exaggerated." (R. 1451.)

(Note that witness is mistaken, as editorial was written in 1819 when Graham and Phillips made their report.) Says the title of Hutchins's Topographical Description, " the road from Detroit to the Illinois " and its contents show that it is a well-known route in about 1774, and it is additional evidence to show that the principal relations between Illinois and Canada was by way of the Wabash. As to whether a journey by the Illinois can fairly be inferred to be by the Desplaines, the witness says it depends upon circumstances in each case. (R. 1451.)

Again refers to Carter as showing that in 1768 French controlled most of the trade in Illinois country and sent it out by way of New Orleans. (R. 1455–1460.) Says Flint was laborious and faithful compiler, relying largely on other writers. Thinks Flint never personally visited Chicago and was misled by the popular impression that Desplaines was a navigable stream. (R. 1460.) Says nothing to warrant Alvord's conclusion that Jesuits used the Chicago-Desplaines route as a usual thing. Says Schoolcraft, Tousey, and Kennedy by personal examination proved erroneous popular

impression that Desplaines was navigable. (R. 1462.)

Hoffman based on Keating and gives no additional weight. (R. 1464.) Keating thought a slight expenditure would cause Great Lakes to empty into Gulf as formerly they did. (R. 1466–1467.) Thinks Keating had no direct knowledge of Desplaines, as he speaks of it as being deep in June. (R. 1467.) Tousey examined river 1823, says it was ignorantly supposed that only a small sum would be necessary to open a waterway between Chicago and Illinois. Says such a waterway would be expensive, but cost would be justified. Says Schoolcraft disagreed with Keating on fertility of soil (R. 1470); concludes, Keating not very reliable. (R. 1471.) Quotes an article to show that soldiers had plenty of rations, whereas Keating said they didn't have. (R. 1473, 1476, 1479.)

Read from Featherstonehaugh criticizing Keating. (R. 1481–1487.) Reads from Prof. Bourne, who had a very high opinion of Keating and Schoolcraft, on how much of Carver's work was accurate. Both criticize Carver. (R. 1491–1497.) Quaife found only one adverse criticism of Featherstonehaugh "that may be regarded as at all serious." Witness says Keating went no farther than Desplaines, and formed conclusion as to its navigability. (R. 1506.) Discussed accuracies of Wau-Bun by Mrs. Kinzie. Considered accurate by Dr. Quaife and other historians. Tells

of Hubbard making trips down the Desplaines with difficulties. Witness referred to his trip easily made up the Desplaines in flood time with 12 boats (R., 1511), and one made with difficulty during the low-water season. Concludes that from 1818 to 1824 Desplaines route was used by American Fur Co. twice yearly, but the route was difficult and soon abandoned by Hubbard (R. 1515), who used horses instead.

Thinks Cass took route because all other routes blockaded by hostile Indians. (R. 1516–1520.) Suggests might have come by way of Chicago to warn whites and not because it was the best route. (R. 1520–1523.) All accounts agreed Cass made a very fast trip. Hubbard's account least trustworthy; McLaughlin's deduction from that account, that Desplaines is navigable, is unwarranted. (R. 1525.)

Hutchins a good authority. Says inference that Desplaines was navigable because of use of the word "portages" is unwarranted. "Illinois, 1837," not reliable. Imlay did not go up the Illinois River. (R. 1528.) Witness says that Prof. Alvord mixed up the trips of Joliet, Frontenac, and Dablon. (R. 1530.) Joliet overenthusiastic about the Illinois country and the Desplaines water route and made unwarranted statements. Witness suggests that Joliet and Marquette might have carried canoe from Chicago River to Illinois River. (R. 1532.) (Note.—Query: "How

did this make Joliet overenthusiastic about the Desplaines?")

Joutel took eight days to make 100 miles over the Illinois-Chicago route. (R. 1533.)

Historians have favorable opinion of John Kenzie, but he was a man of violent temper and had interest in reviving trade. He killed a rival in a business quarrel in a way suggestive of murder. "I don't know, I say, that it is susceptible of proof." (R. 1535.) La Hontan had a high rating, except for his fictitious account of a trip to the "Long River." (R. 1537.) Thinks it impossible that James Logan was ever in Illinois. Refers to passage in Maj. Long's report stating that the Chicago-Desplaines route needed but a little excavation to make it ample for a canal. Says Long did not personally visit all the places which he wrote about, but relied on information from others at times. (R. 1540.) Thinks he did come to Chicago and that he did see the Chicago-Desplaines route.

Witness says the Navigator was a reliable compilation. The paper referred to 2-mile portage between the Desplaines and Chicago Rivers, and witness explains this by suggesting that the editor was never over the route. (R. 1546.) Says the editor is not entirely "frank and truthful with his readers." It does not appear that the editor was ever over this route.

Says, contrary to Prof. Alvord, nothing in Ogden's letters showing that he was on Illinois River. States he plagiarized his account of the Illinois-Chicago River route (R. 1550) from an account by one Andrew Miller. Also probably from Harding and Evans. (R. 1557–1562.)

Says St. Cosme made a portage of 30 leagues on the Desplaines. Says Thwaites exaggerated when he said nothing could be made out of La Source's muddled accounts, but he admits they are a little mixed. (R. 1567.)

Says Pattin just copied Logan's report. (R. 1568.) Refers to Schoolcraft's journey, which he finished on horseback. (R. 1571.)

The article later refers to the Illinois-Chicago route as "one of the principal points where the waters of the Lakes and the Mississippi interlock." Schoolcraft also said the French had used this route for 160 years. Witness says this would be merely hearsay. (R. 1572.)

Discuss Warden's History of the United States, which states that Illinois affords an uninterrupted navigation of 460 miles for small boats up to where it approaches Lake Michigan. Says Warden used Long and Hutchins, and his statements add no weight. (R. 1574–1575.)

Regards Woodruff as untrustworthy. (R. 1578.) Early map makers referred to by Government relied on explorers' statements and were often inaccurate. (R. 1580.) Witness relied largely on Winsor in criticizing various maps. (R.

1597.) Witness then summarizes fourteen specific uses of the river; seven in the spring. "Cass also took a trip up the Desplaines in 1827 in July." (R. 1611.) Quaife differs with Prof. Alvord's conclusions (R. 1615) and Dr. Thwaite's conclusions. (R. 1617–1619.) Witness says for eight or nine months it was impossible to navigate the Desplaines, and his statement that it was merely difficult was unfair. (R. 1621.) Differed with Prof. McLaughlin's conclusions. (R. 1623.) Says McLaughlin did not examine some of the authorities which presented the difficulties in the strongest light. Quaife's conclusion is that the Desplaines was sometimes navigated by canoes and sometimes in the spring by boats, and other times navigation was extremely difficult, and usually impossible. (R. 1626.) Said maps introduced by Government largely based on hearsay. Says Morse relied on Hutchins. (R. 1633.) Some maps didn't mention the Desplaines River and some called it the Chicago River. Witness seems to think that all more or less inaccurate. (R. 1636.)

Witness refuses to answer yes or no as to whether the Desplaines was used by fur traders in the seventeenth century up to about 1830. He admits some canoes passed up and down. (R. 1645.) Refuses to draw any conclusions as to whether or not the Desplaines was ever used except in the fifteen instances pointed out. Presumed the river was used at other times, but no

written account was handed down. (R. 1646.) Would not say whether there was any fur trade in Illinois country in the eighteenth century. (R. 1660.) At any rate, Indian wars lessened the use of the Illinois-Desplaines route. (R. 1662.)

Counsel for Government read to witness a number of extracts commenting on the trade of the Illinois country around Cahokia, etc., to Canada. (R. 1667–1672.) On page 1685 appears a letter from Thomas Jefferson dated July 17, 1808, which refers to the formation of an Indian trading company to be "under the direction of a most excellent man, a Mr. Astor, of New York, long engaged in the business and perfectly master of it." Also letters from settlers and explorers commenting on such trade and its importance, showing that fur companies were carrying on a trade in the Illinois country of some considerable amount between 1780 and 1825. Hubbard, Deschamps, Kinzie and Forsyth, Berthold and Chouteau, and the American Fur Company were some of the traders and trading concerns. (R. 1687.) Witness would not say whether the most active period of trading was 1783 to 1825.

Again enumerated uses of the river. (R. 1689.) Reiterates statement that most of the time parties using the Desplaines had to push or roll their boats a good part of the way, as the water was so shallow. (R. 1696.) Blanchard's History of Chicago speaking as of 1880 gives an account of a Mr. Galloway moving his family and valuables

from Chicago in 1827 through Mud Lake and down the Desplaines and Illinois to their new home—a place then called the Grand Rapids of the Illinois. (R. 1702.) Counsel for Government read other extracts showing other trips not enumerated, but witness replied that he had not made an independent investigation and could not say whether the accounts were accurate or not. Admits other trips were possible, but steadily refuses to say other trips were made. (R. 1705.) Gives reasons for stating that most of 15 enumerated trips were made in spring or fall. (R. 1707.) Also difficulties encountered by each voyager. Gives detailed account of La Salle's trip (R. 1711–1713), and discusses other trips of La Salle (R. 1713–1715), and statement of La Salle that in the summer there was no water in the Desplaines as far as Fort St. Louis, where the navigation of the Illinois begins at this season and continues as far as the sea. (R. 1717.) He used canoes part of the time and part of the time a sailboat. (R. 1721.)

Cross-examination of witness on relative reliability of Keating and La Salle. (R. 1729–1730–1731.) Joutel's chief difficulty with Desplaines was excess of water in the river. (R. 1736.) St. Cosme found water too low and had to make a long portage of about 15 leagues. Charlevoix did not use route. (R. 1754–1757.) High opinion of Charlevoix's accuracy. (R. 1759–1760.) Discusses Heward's trip in 1870, Schoolcraft's. (R. 1769-

1774–1778–1779–1780.) Said he was acquainted with Beck's Gazetteer, the American State Papers. (R. 1802–1806.) Beck's Gazetteer referred to boats of 8 to 10 tons' burden passing through the Desplaines route. (R. 1807.) Witness said Beck referred to the time of the spring floods.

Reads from Wau-Bun to show that Kenzie used pack horses. Said Hubbard used pack horses also. (R. 1808–1809.) Discusses reliability of Darby when he said St. Louis Enquirer's editorial settled the question of the navigability of the Desplaines. (R. 1812.) Thinks Benton wrote editorial in about 1819. (R. 1814), and thinks Benton was never in Chicago. Might have talked with travelers, but probably never made a personal investigation. He does not believe statement in Drown's History of Peoria, that John Hamlin shipped provisions up the Desplaines in 1825. (R. 1821.) Witness says apparently Illinois River used to be Illinois and Desplaines on Dupratz's map. Dupratz had said there was some travel from Canada to the Mississippi by way of the Illinois. (R. 1827.) Refers to Joliet's, Hennepin's and Lahontan's maps as only ones which were, strictly speaking, first-grade sources. (R. 1829.)

Does not suppose the Desplaines route, or passage from Flint at any rate, in the light of my general knowledge of the subject, indicates that the Desplaines was used as an avenue of commerce commonly or generally. (R. 1831.)

Discussing Schoolcraft (R. 1833–1838), counsel for Government calls attention to witness' statement that Hoffman's account was based on Keating, and also calls attention to letter of Hoffman stating that he had discussed the canal with Maj. H., United States engineer. (R. 1840.)

Witness had said Hutchins' work was based on Kennedy's, but now says Kennedy never saw Desplaines. Hutchins had said there were only two portages, a 4-mile portage and a smaller one, between the Illinois and Desplaines Rivers.

Imlay said that Hutchins gave a good account of Illinois country. Witness agrees Imlay has high standing among historians. (R. 1851.) Governor Hull, of Michigan territory, discussed. Witness thought it unlikely he had ever been to Desplaines River personally. (R. 1855.) Says Lahontan probably told the truth, as he wanted the people for whom he was working to believe him, and they were somewhat acquainted with the Illinois country. (R. 1857.)

Says Kinzie probably did not tell the truth when writing to Cass, although he was writing to one somewhat familiar with the territory. This letter mentioned the importance of the Illinois-Desplaines route, "as at present boats of several tons burden" pass from Lake Michigan into the Mississippi. (R. 1856–1857.)

Witness discusses story about Kinzie once killing a man (R. 1857–1861) and about a court-mar-

tial once held to see if Kinzie was in the British service during the war of 1812. (R. 1862–1868.)

Government introduced a map by Edwin James, London, 1823, purporting to show route followed by Maj. Long in 1816–17 which went through Illinois River Valley and back again. Witness would not say positively that Maj. Long was in the Illinois country at that time. (R. 1871–72.)

Regarding Alvord's statement that Ogden was on the Illinois River, Quaife finds nothing in Ogden's letters to support this. (R. 1877). Quaife discussed a number of early maps. (R. 1882.) Don't think much of Woodruff's History, which mentions grain being shipped up the Desplaines. (R. 1885.) Says he wonders why they didn't ship anything else.

Cross-examined on general knowledge of maps. (R. 1885–1915.) Some of these maps show supposed portages; some, a line which might be the Desplaines; some indicated routes which travelers used; some the proposed canals; some of them were fairly good maps and some very poor. Attaches no significance to the fact that a certain map called a certain road between the Chicago and Desplaines Rivers a " portage road." (R. 1915.) Witness admits that he thinks it likely that traders used the Desplaines if they had occasion to go that way and found it practical to use it. (R. 1917.) He admits that it was used many times during the 40-year period of 1783–1825 by traders or travel-

ers, but would not go so far as to say that it was commonly used. (R. 1917–18.)

Alvord recalled to change a statement about "flat boats" to "flat-bottomed boats" which he said went up and down the Desplaines in the eighteenth and the first part of the nineteenth century. (R. 1919.)

Quaife took up Joutel's Journal and said that parts were missing and had been supplied by Margry "as best he might." (R. 1920.) Discussed other maps of Illinois country (R. 1923) by Governor Hull, of Michigan territory and Hennepin. (R. 1924.) Said maps were erroneous in many respects.

Gives opinion as to what papers of Hubbard were authentic and which were not. (R. 1926–1930.)

Hobart W. Harper, photographer, identifies photographs of Desplaines between Lockport and Romeo, about 2 miles above Lockport (R. 1974–1975), in the stretch between Chicago and Joliet, which show the river nearly dry at places which was taken September 12, 1908.

Daniel W. Mead for appellant. Forty-six years old. Civil engineer. Chief engineer for appellant. Professor of hydraulic and sanitary engineering, University of Wisconsin. (R. 1992.) Familiar in a general way with Desplaines River. (R. 1995.) Says flow would probably be maintained a little longer if stream was well forested,

but forests make little difference. Discusses this question. (R. 1997–1998.) Mr. Mead only familiar with Desplaines in a general way. Has passed over it. (R. 2000.) Admits deforestation would have larger effect on a stream with an impermeable subsoil like the Desplaines than on one with a permeable subsoil. Says large swamp area will somewhat prolong the flow of a stream, but not to any great extent. Agrees that forests consume less water than open country. (R. 2004.)

FACTS OF WHICH THE COURT TAKES JUDICIAL NOTICE.

There are many facts of past and current history of which the court must take judicial notice and which have a bearing upon this case. Particularly is this true with respect to the present state and importance of shallow-water navigation which has been the subject of much modern discussion. For the information of the court on this subject, we reprint as an appendix to this brief several articles dealing with shallow-water navigation.

I.

The portion of the Desplaines River in question is a navigable water of the United States subject to the paramount authority of Congress to protect its navigability.

1. The Desplaines River from Portage Lake to its mouth where it joined with the Kankakee to form the Illinois was navigable in a state of nature and for 160 years was actually navigated for commercial purposes.

(*a*) This is amply sustained by evidence.

(*b*) The District Court and Circuit Court of Appeals having concurred in this finding, the general rule applies, "that concurrent decisions of the two lower courts on an issue of fact will be accepted by this court unless shown to be clearly erroneous."

(1) *Luckenbach et al.* v. *McCohan Sugar Refining Co. et al.*, 248 U. S. 139.

(2) *The Wilderoft*, 201 U. S. 378–387.

(3) *The Carib Prince*, 170 U. S. 655–658.

2. The navigation of the Desplaines River by the means shown by the evidence in connection with foreign and interstate commerce makes it a navigable water of the United States.

The Montello, 20 Wallace, 430.

St. Anthony Water Power Company v. *Water Commissioners*, 168 U. S. 349, 359.

United States v. *Chandler Dunbar Company,* 229 U. S. 53.

Hickok v. *Hine,* 23 Ohio State Reporter, 523, 527.

Brown v. *Chadbourne,* 31 Maine, 9, 19, 23.

Moore v. *Sanborn,* 2 Mich. 519.

Morgan v. *King,* 35 N. Y. 454.

3. The fact that navigation may be difficult and at places interrupted does not render a stream unnavigable. (See cases supra.) The character of a river as a public highway is not determined by the frequency of its use, but its capacity for being used.

Hickok v. *Hine,* supra, and other cases cited.

4. Nor is it essential that the stream should be capable of being navigated at all seasons of the year.

Morgan v. *King,* supra.

Brown v. *Chadbourne,* supra.

Nor does navigability depend upon the amount of tonnage, depth of water, nor capacity for use by modern means of transportation.

The Montello, supra.

State v. *Pacific Guano Company,* 26 S. C. 50.

Heyward v. *Farmers' Mining Company,* 42 S. C. 139.

Burroughs v. *Whitwam,* 59 Mich. 279.

Wadsworth, Admin., v. *Smith,* 11 Maine, 278.

Lewis v. *Coffey County,* 77 Ala. 190–193.

II.

Where a stream is navigable in a state of nature the power of Congress to protect and promote its navigability can not be lost or destroyed by nonuse or artificial depletion.

People v. *Page*, 56 N. Y. 834.

III.

As the Chicago-Desplaines-Illinois route was one of the navigable waters leading into the Mississippi actually being navigated when the ordinance of 1787 was adopted and when the acts of Congress of May 18, 1796,* and March 26, ~~1804~~ 1804, governing the sale of land in the territory were passed the public easement of navigation can never be destroyed or lost.

1. It was within the constitutional power of Congress to enact the provisions of the acts of 1796 and 1804 for the purpose of regulating interstate commerce by perpetuating the public highways constituted by the navigable streams in the Territories.

Coyle v. *Oklahoma*, 221 U. S. 559, 574.
U. S. v. *Sandoval*, 231 U. S. 28, 38.
Ruddy v. *Rossi*, 248 U. S. 104.

2. And these enactments were not affected by the admission of Illinois as a State. (See cases cited under 1.)

3. The provision of the act of 1796 "that all navigable rivers within the territory to be disposed of by virtue of this act shall be deemed to be and remain public highways" created a perpetual pub-

* C 29, 1 Stat 464, (Sect 9)
X C 35, 2 Stat 279. (Sect 6)

lic easement for the purposes of travel and appellant holds its title subject thereto.

4. The Government denies that the public easement over a navigable water can in any case be lost, but if the loss of such public easement were for any reason and in any case possible, it could not be possible in the case at bar since the very acts providing for the disposal of the land in question fixed the character of the navigable streams as public highways and make the public easement perpetual.

IV.

The act of March 3, 1899, is an act for the protection of the navigability of the stream and prevents impediments to its navigability even in the absence of actual navigation.

United States v. *Rio Grande Irrigation Co.,* 174 U. S. 690.

United States v. *Chandler Dunbar Company,* supra.

Discussed in the instant case, 256 Fed. 799, and so held by the court of appeals.

V.

As neither Congress nor the Illinois Legislature has consented or given authority for the building of the dam in question it is within the inhibition of the statute.

Cummings v. *Chicago,* 188 U. S. 410.

Montgomery v. *Portland,* 190 U. S. 89.

VI.

The fact that the plans for the dam have never been approved by the Chief of Engineers and by the Secretary of War likewise brings the proposed structure within the inhibition of the statute.

(See cases cited under V.)

VII.

Were it possible for the navigability of the stream to be lost (which the Government denies) navigability of the portion of the Desplaines in question in a state of nature and the present navigability resulting from the augmenting of its flow would bring it within the act of 1899 while at the same time the acts of 1796 and 1804 would prevent any claim that the act so applied was unconstitutional or affected vested property rights, since the riparian owner under the public land acts holds its title subject to the public easement.

VIII.

While firmly resting its case on the natural navigability of the stream the Government submits that the increased navigability of the stream caused by turning in the waters of Lake Michigan would, had it been unnavigable in a state of nature, bring it directly within the control of Congress and the terms of the acts of March 3, 1899.

Ex parte Boyer, 109 U. S. 629.

The Robert W. Parsons, 191 U. S. 17.

Monongahela Navigation Company v. *U. S.,* 148 U. S. 312, 342.

Gilman v. *Philadelphia,* 3 Wall. 713, 724.

Gibson v. *U. S.,* 166 U. S. 269.

IX.

The War Department never in any way "assured appellant's predecessor that the Desplaines River was not a navigable stream" or took any official action in regard to appellant's plans.

X.

No action of the War Department could estop the United States from asserting the navigability of a stream and removing or preventing an obstruction to its navigability and without compensation.

Greenleaf Lumber Co. v. *Garrison,* 237 U. S. 251.

Oyster Co. v. *Briggs,* 229 U. S. 82.

Union Bridge Company v. *U. S.,* 204 U. S. 364, 400.

Philadelphia Company v. *Stimson,* 223 U. S. 605.

United States v. *Chandler Dunbar Company,* 229 U. S. 53, 68.

West Chicago Railroad v. *Chicago,* 201 U. S. 506.

Chicago, Burlington & Quincy Railroad v. *Drainage Commissioners,* 200 U. S. 561.

XI.

This court has never passed on the merits of the present controversy in any of its phases but has expressly declined so to do.

Illinois v. *Economy Power Company,* 234 U. S. 497.

XII.

The portion of the Desplaines in question connects with the Sanitary and Ship Canal on the north and the Illinois on the south, thereby completing the navigable water connection between the Great Lakes and the Mississippi.

XIII [redacted].

The power of Congress to protect the navigability of waters does not rest alone on the power to regulate interstate and foreign commerce, but is also an incident of its power to make war, raise and support armies, etc. (Opinion of Court of Appeals, 256 Fed. 799.)

ARGUMENT.

In the course of its brief appellant states that the Government is seeking to use the act of March 3rd, 1899, to accomplish an inequitable and unjust end. That suggestion will be dealt with in its proper place, but here it is pointed out that it is obviously the sole purpose of the Government to protect the navigability of that part of the Desplaines River lying between its junction with the Illinois and Michigan Canal and Sanitary and Ship Canal at Joliet and its confluence with the Kankakee River at its mouth, a navigability demonstrated by the successful navigation carried on for purposes of useful foreign and interstate commerce for over 160 years until that navigation was prevented by the erection of dams and other

obstructions and superseded by the superior means afforded by the Illinois and Michigan Canal. Its good faith is demonstrated by the enormous importance of this link in the Lakes to the Gulf waterway, which has, in repeated reports of Government engineers, been declared to be the one available means of connecting the Sanitary and Ship Canal with the head of steamboat navigation on the Illinois at La Salle or Ottawa.

In considering the good faith of the Government, the court can not but take judicial notice of the fact that the State of Illinois itself had, prior to the beginning of the suit, empowered the general assembly by a constitutional amendment to expend $20,000,000.00 for the extension of the waterway through the strip in question and down to La Salle, and that legislative action for the expenditure of this sum in the improvement of this portion of the Desplaines and the upper Illinois had been taken by the general assembly, and that appellant's claim of a right to place a dam in the river has been the sole impediment which has delayed the completion of this improvement for nearly thirteen years. The steps by which appellant and its predecessor sought to put themselves in a position to exploit the water power created by the expenditure of $63,000,000.00 of public money have been referred to in the statement of facts and will be spoken of again in the argument.

I.

The portion of the Desplaines River in question was a part of the Chicago-Desplaines-Illinois route navigated for purposes of interstate and foreign commerce for 160 years by the usual means employed in lake and river navigation and was and is a navigable water of the United States and subject to the paramount authority of Congress to protect its navigability.

The position taken by the Government is that in this case in which it presented to the district court its bill in equity to prevent an unlawful obstruction to a navigable stream, it is entitled to have the merits of its case considered and decided upon the record in this cause without reference to conclusions reached by any other court in any other case between different parties.

Appellant, however, from the outset rests its case upon the conclusions of the Supreme Court of Illinois, in a case to which the United States was not a party, and in effect asks the reversal of the district court and the court of appeals on the ground that they do not harmonize with the conclusions of that court.

The district court found that the State court's judgment was "obviously rendered on record vitally different on the facts from record here as to actual use of stream for trade and travel by customary mode at time of use." While the Government, even if it were possible to present the

two records to this court would find it an endless task to compare them, and point out the vital differences appearing, it has with some painful labor examined and noted in this brief numerous items of important and compelling testimony received in the instant case and in no way touched upon by the evidence before the State court. But to show the essentially different character of the two records, it is only necessary to call attention to a portion of the State court's opinion quoted in appellant's brief at page 130. " There is not in this entire record a well-authenticated instance in which a boat engaged in commerce navigated the waters of the Desplaines River."

Compare this finding by the State court with the admission by appellant's own historical experts as to the commercial use of the river " from 1818 to 1824 " by the American Fur Company and the employment of a brigade of twelve to thirteen *Mackinaw boats* (R. 1660), which annually, at least during the years mentioned, made a voyage from Mackinac Island to Chicago and down to the company's trading posts on the Illinois, going by way of the Chicago-Desplaines-Illinois route, using two small portages in the fall and returning in the spring with their boats loaded with furs over an unbroken navigation of water by the route in question, and we have an indication of the essential difference between the record in the State

case and the record here. In view of this difference alone we submit that the decision of the State case can not be considered as in any way even persuasive, and we therefore proceed to present the case on the record presented in the district court.

Before dealing with other evidence concerning the navigability of the Desplaines River, attention is called to appellant's suggestion that, as there is no evidence of the navigation of the Desplaines *within the memory of living witnesses,* this is very persuasive that it is not navigable. In answer the Government calls attention to the fact that since 1848, *sixty-two years* prior to the time when the taking of evidence began in this case, the Desplaines has been paralleled by the Illinois and Michigan Canal, which was intended to and did afford an obviously superior navigation, and that according to counsel's own statement, there was a dam obstructing navigation on the site in question erected in 1826, three at least in 1833, one in 1835, at least two in 1839, one in 1841, and one at least in 1846, while the construction of the Illinois and Michigan Canal began in 1836. Without referring to the controverted question of how much the building of the canal and other causes depleted the flow of the Desplaines, it is enough to say that practical navigation of the Desplaines had been rendered impossible by artificial obstructions for at least *seventy-seven years* prior to the hearing of this cause, and that in consequence the absence of

proof by living witnesses of navigation within their memory is of no probative force.

In affirmative support of the navigability of the river, we have the concurrence of the two Federal courts passing on this case. The district court found proof of actual navigation from early fur-trading days down to the end of the first quarter of last century. "Proof of actual specific use by the customary mode of trade and travel by water—that is, by kind of craft then used for that purpose in rivers of the United States—throughout this period appears. Controversy here has really been as to extent rather than to the fact of such use." R. 37 The court of appeals specifically finds that "from the latter part of the seventeenth century, through the first third of the nineteenth century, men engaged in the fur trade passed up and down the Chicago and Desplaines Rivers in canoes and flat boats very regularly." It lists fourteen specific instances of the use of the Desplaines down to the year 1830; says many others not so well authenticated were disclosed and mentions numerous historical references to the Chicago-Illinois route. "No doubt other instances of its use may properly be inferred. It was employed by the American Fur Company down to 1825 and then abandoned for other routes." It finds that the fur trade was a leading branch of commerce in the western world and one of the characteristics of the Desplaines River. "Large quantities of supplies of various kinds needed by the settlers in a new

country were also transported over the Desplaines during the same period in boats of the size and character then commonly used in river commerce, this transportation being carried on between Chicago, St. Louis, and other points. Canoes of several tons burden were used; some were 35 feet long by 6 feet wide; some 33 feet long by 4½ feet wide, worked by paddles, occasionally a sail, and had a crew of eight men, carrying as much as 6,000 pounds of freight, as well as 1,000 pounds of provisions. The pirogues were manned by six or seven oars; the batteaux were larger than the pirogues; the Durham boats were heavy freight craft 60 feet long, 8 feet wide, 2 feet deep, with a capacity of 15 tons, drawing 20 inches of water." After referring to the dams, they say that some were constructed "as early as the year 1835, and their existence in the river was a source of obstruction to the commerce that had formerly been carried on."

We note here that appellant's chief historical witness says the boats used by the American Fur Company were Mackinaw boats "used on the Great Lakes and the rivers emptying into them." (R. 1660.)

In view of the well-established rule that where the district court and court of appeals have concurred on a question of fact this court will not disregard that finding unless it is clearly contrary to the evidence, the question arises as to what ground appears here for overturning the finding

of the two courts which the brief review of the evidence already given shows is definitely and affirmatively sustained by historical evidence of the highest character and supported by the conclusions of Professors Alvord, McLaughlin, and Thwaites, three of the most distinguished and well-grounded historians in western history; one of whom, Professor McLaughlin, has some special and unusual qualifications as an expert in the field of historical evidence.

Graham & Philips' Report to the Government in 1819 that boats of 6 and 8 tons engaged in the Mackinaw and Mississippi trade run through backwards and forwards so as to make no portage between Mackinaw and the Mississippi River in spring has already been referred to. This was not in the State case, nor was Hubbard's testimony as to the use of 12 and at times 13 Mackinaw boats navigating from Mackinaw down to the trading posts on the Illinois River by way of the Desplaines with some difficulty in the dry season and with an unbroken navigation coming back loaded with furs in the spring and being obliged at times to send back part of the boats to Chicago for an extra trip on account of the amount of furs.

Appellant's witnesses admit this course of trading from 1818 to 1825; but the American Fur Company, organized in 1816, was a reorganization of the Mackinac and Northwest companies formed in about 1784, and engaged in the Illinois River

fur trade, following the breakup of the "General Store" organized by a majority of the Mackinac merchants in 1778. (R. 1671.) And that the fur company was only continuing the methods employed by its predecessors is evidenced by Hubbard's statement in proof of the location of a certain house at Chicago in 1778 that "this tradition I received from Antoine Deschamps and Antoine Beson, who, from about 1778, had passed from Lake Michigan to the Illinois River yearly. They were old men when I first knew them in 1818." (R. 1667.) In 1818 Deschamps was superintendent of the Illinois trading post of the company, and had been engaged in the fur trade on the Mississippi, Illinois, and Ohio Rivers for about forty years.

Nor was there any evidence in the State case of the annual trips of Antoine Deschamps to St. Louis for supplies, nor the rapid trip made by Governor Cass, in July, 1827, according to appellants' witnesses (R., 1203), when he came up the river with his secretary in a canoe manned by 12 paddlers and a steersman and averaging 60 miles a day. Apparently there were 18 men in the canoe. (R., 305.) Nor was the letter from Governor Cass to the Secretary of War in 1815, stating that there are three great channels of communication by which goods may be introduced in the Mississippi and Missouri country from the British Dominions. One is by way of Chicago and down the Illinois. Nor the letter of John

Kinzie to Cass, saying that at present boats of several tons burden can pass from Lake Michigan into the Mississippi; nor the statement of William Darby, famous United States surveyor, in 1818, that the Chicago and Illinois Rivers offered the most natural and eligible connection between the northern and southern waters of the United States; nor Thomas A. Benton's editorial in the St. Louis Enquirer, in 1819, that "the French of Canada and of the Valley of Mississippi have communicated through this channel since the settlement of the countries. In high water, boats of ten or a dozen tons pass without obstruction. In dry season they are unloaded, drawn by oxen over a portage of a few miles. Hundreds, nay thousands, of boats have been seen at St. Louis which have made a similar passage." (R. 106.)

Mr. Schoolcraft's statement concerning his trip in August 13, 1821, nor the statement of Childs, a fur trader, recounting a trip in 1821, returning from St. Louis "by way of the Illinois River" and finding the portage full of water, nor the fact that the Illinois delegate got the Illinois boundary changed to give the State a port on the lake "to bring in the State northern settlers by the northern waterway," obviously referring to the Desplaines. Nor was the report of William H. Keating, professor of mineralogy and chemistry in the University of Pennsylvania, published in 1825 in London, which recounts that as they were informed that the Desplaines was frequently trav-

eled, they determined to use it, and were informed by Lieutenant Hopson, who accompanied them to the Desplaines, that he traveled it with ease in a boat loaded with lead and flour; nor was Fonda's trip up the Desplaines. Drown's Record of Historical Review of Peoria in 1850 states that John Hamlin, *still living in Peoria,* when a clerk in the American Fur Company store at Peoria exported the first products to Chicago in 1825 in keel boats as far as the mouth and from there in Durham boats to Chicago by way of the Desplaines. The report of the select committee to the Eighteenth Congress in 1825, stating that repeated passages have been made by uninterrupted navigation from the Illinois River into the lake, was not in the State case, nor the statement in the American Gazetteer in 1797. The Navigator in 1824 refers to the communication. The letter of Lieutenant John G. Furman, U. S. A., 1830, and the extract from Flint's History, 1832, are not in the State case. Schoolcraft's Narrative, 1832, says the route has been used by the French by canoes and flat-bottom boats in its natural state for 160 years. The statement by Charles F. Hoffman, 1835, of navigation by boats of 18 tons is not in the State case, nor the statement in the History of Will County, published in 1878, that farm products were boated up the Desplaines to Chicago. There is a reference to the use of the route from the first discovery of the country by Europeans "in Illinois in 1837," which is not in the State case.

(R. 162.) Justin Winsor's reference to the route as one of the three trade routes to the Mississippi states that before the end of the seventeenth century the portages at the head of Lake Michigan " have become the best known of all, and there had been a trading post for some fifteen years at the Chicago River." (R. 166.) There is a reference to the route in The Old Northwest; also one in History of Wisconsin. by William R. Smith, referred to in *The Montello.* Neither Professor McLaughlin nor Dr. Thwaites testified in the State case. Attention has been called to the fact that the United States surveyor in 1821 made a meander survey of the stream, noting the point of connection with Portage Lake, which connects with the Chicago River as " head of navigation." (R. 2301–2344.)

There is also a reference to Chittenden which is not in the State case, nor was Logan's report in December, 1718, to Governor Keith, of Pennsylvania, which describes the route, nor Charlevoix's reference to it in 1721, nor was the letter from Choiseul, prime minister of France, to the French agent negotiating peace terms, nor were the extracts from the Haldimand papers, nor the statemen of General Collot, governor of Guadeloupe, referring to navigation of the route by boats carrying from fifteen thousand to twenty thousand weight, made apparently in the latter part of the eighteenth century, nor was the statement of Robert Dickinson in 1793, nor the peace treaty nego-

tiated by Anthony Wayne in 1795, securing free passage over this route, nor the statement by Thomas Forsyth in 1814. We do not feel justified in going more into detail or referring to the numerous specific instances of navigation over the route which have already been referred to in our statement of the case.

Professor McLaughlin calls attention to the fact that the great majority of the men traveling upon the fur trade or in military expeditions were not in the habit of making records; that the unlicensed fur traders who were subject to severe punishment would naturally avoid making records, while the great mass of material in the French archives supplied by the Jesuit missionaries is still to be unearthed. Professor Alvord says that one would not expect to find many accounts of actual use of a river situated far from civilization like the Desplaines was when used in the fur trade. Men using it were not given to pursuit of literature, the majority being illiterate French Canadians, while many English were not educated men. "The novelty of the travel over such a route had worn off, so that it would be surprising if there had been preserved many narratives by the men who had made the journey by themselves. To me it seems surprising that we have as many as we have preserved." (R. 299.)

It is by the merest chance that specific instances of use by the American Fur Company have been preserved, although it is clear that it was regu-

larly so used by an Illinois brigade of thirteen Mackinaw boats from 1816 to 1825, and it is interesting that although Antoine Des Champs, its superintendent, a man of education and charming personality, was engaged in the fur trade over the Ohio and over the Chicago-Desplaines-Illinois route and on the Mississippi for over forty-seven years, we have no line from him concerning a single trip which he ever took. Appellant insistently relies on the fact that Hubbard, upon succeeding Des Champs in 1825, changed the method of reaching the Indian hunting grounds and substituted the mode of going directly to the grounds by pack horses, avoiding the necessity of carrying the merchandise from the trading posts along the Illinois River to the hunting grounds on the backs of men and also avoiding the difficulties of the navigation through Portage Lake in the fall. This evidence does not support but destroys his contention, for it shows the existence of a long-established navigation of the Desplaines which Hubbard had long urged Mr. Des Champs to abandon, " but without success," and it is interesting that although the testimony of the historical witnesses shows, and the context of the very statement in question evidences the fact that the Indian hunting grounds had receded far from the river, and it was necessary to transport the merchandise from, and the furs to, the river on the backs of men, Mr. Des Champs still preferred that means of navigation to the mode of transportation suggested.

Attention, however, is called to the engineering evidence, particularly that of Cooley, amply sustaining the navigable capacity of the river in a state of nature and corroborating the historical testimony in regard to its actual navigation. Reference is also here made to various articles and reports called to the attention of the court as facts of which it will take judicial notice and attached as an appendix, which clearly establish that a stream having the capacity of the Desplaines in a state of nature is and was prior to the time this suit was instituted, capable of being navigated by the same means by which a great and immensely profitable river navigation is now being carried on throughout the United States. Evidence on this point was also introduced at the trial and has been referred to. Here it may be noted in passing that the minimum low-water depth at the shallowest place of the strip in question was, in a state of nature, 18 inches while wooden inland waterway barges of 100 to 200 tons capacity are floated on a draft of 2 feet or less, while the testimony of Governor Van Sant shows practical river navigation on from 12 to 16 inches of water, while Coen testifies that boats could be built for navigation of the Desplaines carrying a 50-ton load on 18 inches of water, and three steamboats navigating the Mississippi appear in the register with a draft of 2 feet and a net tonnage of from 52 to 83 tons. The invention of the tunnel boat, the hundreds of thousands motor boats and motor barges in use,

and the use of steel and aluminum construction, supply means of shallow water river navigation far superior to the crude and clumsy means employed from 1673 to 1827 when wind and muscle furnished the only motor power and wood the only material.

To say that a stream which was successfully navigated by the crude means employed in river navigation in the seventeenth, eighteenth, and first third of the nineteenth centuries can not be successfully navigated by the superior means now furnished seems contrary to all reason. Navigation, like history, goes through certain cycles; in one we have navigation by small crafts in small units, like the 13 Mackinaw boats of the Illinois brigade of the American Fur Company, propelled by oars and sails and probably not exceeding in capacity ten or a dozen tons. Then we have a period of canal-boat navigation, then a steamboat navigation, and finally of such tonnage and of such extravagant cost of operation that it for a time disappears even from the Mississippi. Now we have returned to a period of successful shallow-water navigation by boats drawing even less than the Mackinaw boats of the fur traders. But very obviously the test by which the navigability of the stream is to be determined has not changed. Navigability is not a cat-and-mouse affair appearing during one period and disappearing with a change in current methods. In *The Montello*, 20 Wallace, 430, the court took the impregnable

position that " It would be a narrow rule to hold that in this country unless a river was capable of being navigated by steam or sail vessels it could not be treated as a public highway. The capability of use by the public for purposes of transportation and commerce affords the true criterion of the navigability of a river, rather than the extent and manner of that use. If it be capable in its natural state of being used for purposes of commerce, no matter in what mode the commerce may be conducted, it is navigable in fact and becomes in law a public river or highway."

The learned counsel for appellant, however, seeks to demonstrate that the navigability of the Desplaines River is not equal and was not equal in a state of nature to the navigability of the Fox River. We decline to enter upon that discussion, because we submit that the question is not whether the Desplaines River is equal in its navigable capacity to the Fox River referred to in the Montello case, but whether it meets the *test* of navigability there laid down. Counsel attempt to demonstrate that there were greater difficulties encountered in the navigation of the Desplaines than that of the Fox, but the court in the Montello case say: "The true test of the navigability of the stream does not depend upon the mode by which commerce is or may be conducted nor the difficulties attending navigation. If this was so, the public would be deprived of the use of many of the large

rivers of the country over which great rafts of lumber are constantly taken to market." Not only this, but it is perfectly obvious that the country would be deprived of the use of innumerable rivers which are now being navigated and of literally thousands of rivers and other navigable waters having sufficient navigable capacity, but which, on account of the fact that the development of the country has only begun, have not yet been put to commercial use. Too much insistence can not be placed upon the fact that the navigable waters of the country, not merely its great arteries, but the great network of navigable waters reaching every part of our territory constitute the main and only permanent transportation resource which the country has. Railroads in their operation consume a vast quantity of coal and steadily make for the inevitable depletion of that natural resource. A court can hardly avoid noting that we have now reached a point in their development where they are definitely inadequate to our transportation needs, and there is an increasing portion of our products which is unable to bear the actual cost of transportation. We are, therefore, at a point where the normal interchange of commodities must be assisted by a cheaper form of transportation or be largely curtailed.

What is true of freight traffic is rapidly becoming true of passenger traffic, and it has often been remarked that the low cost of transportation and the resulting general social and commercial inter-

course among our people is one of the strongest factors in making us a nation.

Thus, as the cost of transportation by the railroads increases it brings into clearer view the practical and national value of the navigability of our public waters.

That the national importance of a river rising in Wisconsin and flowing through the entire length of Illinois into the Mississippi should be doubted seems unthinkable.

The point suggested here is that when railroads began to be operated so cheaply as to make the navigation of navigable waters unprofitable, even in such notable instances as the Mississippi, this did not change the test of navigability, for if a stream was capable of being used for purposes of useful commerce, it continued to be navigable regardless of whether it could be profitably used for purposes of transportation in competition with other means at that particular moment or not. Likewise, as the stream in question here proved by actual test its availability and usefulness for purposes of interstate and foreign commerce for over a century and a half, it was and is a navigable water of the United States.

Counsel for appellant lays considerable stress on two cases decided in this court in which navigability was referred to. He calls attention to *United States* v. *Rio Grande, etc., Company,* 174 U. S. 690, and says that the distinction made between the Rio Grande and the Fox is even more

applicable to the Desplaines. It may be noted that in the case of the Rio Grande the only claim made was that in the part in question it had been used for floating and transportation of rafts, logs, and poles. The district court read numerous affidavits, extracts from geological reports, agricultural reports, reports of engineers, histories, and other information, and took judicial notice of the fact that the Rio Grande was not navigable within the territory of New Mexico. This ruling was sustained by the Supreme Court of New Mexico, and *the trial court's right to take judicial notice of the fact that the Rio Grande was not navigable within the limits of New Mexico was conceded by counsel for the Government at the trial, although the Attorney General on the argument declined to make the same concession.* (R. 696.) There was apparently no evidence of any navigability whatever except in times of unusual flood, and then only for the purpose of floating rafts, logs, and poles. Consequently the court say: "Its use for any purpose of transportation has been and is exceptional and only in cases of temporary high water." The court therefore say they are not "disposed to question the conclusion reached by the trial court and the Supreme Court of the Territory."

Comparing this for a moment with the case at bar, we find that the navigation of the Desplaines was not exceptional and not confined to periods of

high water. It continued for 160 years and was carried on in the dry season of September as well as the high-water period in the spring. The difficulty experienced by the American Fur Company in getting their mackinaw boats through the channel from the Chicago River to Portage Lake in the early fall was obviously due to the fact that they were required to be built sufficiently large and of sufficiently heavy material to navigate not merely the Desplaines River but Lake Michigan throughout its entire length. A review of the uses of the river will also show its actual navigation at practically all times during the year, with the exception of the driest and most sultry seasons when substantial portages were required, and we note that the rapid trip taken by Governor Cass averaging 60 miles a day in a canoe containing 18 men in 1827 was accomplished in a very sultry July and without any portage even between the Desplaines and the Chicago. In a word, the Desplaines was navigated in low-water stages with difficulty by large boats, and in the other stages without difficulty even by heavy mackinaw boats, but as this court has said, navigability does not depend on the difficulties attending navigation.

Appellant also relies on *Leovy* v. *United States,* 177 U. S. 621, 637. In this case the trial court told the jury that if you could travel by water continuously from one State to another the water is navigable water of the United States (p. 632), and in criticizing this the court says: "The mere ca-

pacity to pass in a boat of any size, however small, from one stream or rivulet to another, the jury is informed is sufficient to constitute a navigable water of the United States," and held that definition to be too broad. The Government will have occasion to refer to this case again and point out that navigability was in no way in question, and that the sole question involved was that of actual navigation. Counsel in another part of his brief relies on *Donnelly* v. *United States,* 228 U. S. 708, 709, which was the decision of this court on a petition for rehearing. In its first opinion, 228 U. S. 260, the court had said that " there was evidence in the record tending to show that the stream was navigable in fact at certain seasons from Requa (near its mouth) up to and above the locus in quo." The court then assumed that that question was not important, and that it bore only on the question of title, and held that as the river had been, in effect, declared to be nonnavigable by the California Legislature, it must therefore be treated as nonnavigable in law. This position was assailed in a petition for rehearing, attention being called to other decisions of the Supreme Court of California holding that the enumerating of certain rivers as navigable did not prevent other rivers, navigable in fact, being also so considered, and the court therefore said that " Our position respecting the navigability of the Klamath River and State ownership of the bed thereof is so serious in its ulterior consequences that it ought not to be ad-

hered to without further argument," and state that, as the prior opinion points out, " there was evidence tending to show that the stream is navigable in fact from Requa (near its mouth) up to and above the locus in quo, but the evidence was by no means conclusive," and not sufficient to enable the court to take judicial notice of the stream as being navigable in fact, " especially in the face of a declaration by the legislature of the State that it was not navigable."

The court then say that the plaintiff failed to suggest that the navigability of the river should be considered as a question of fact. And at page 711 that " if the suggestion of excluding the river from the reservation on the ground that it was navigable was intended to be made the subject of exception at the trial, this point should have been clearly raised; and it was not * * *. The state of the record, therefore, did not entitle the plaintiff in error to call upon this court to decide the merits of the question of the navigability of the river and its affect upon the jurisdiction of the circuit court over the homicide." The court thereupon recalled its decision on the question of the navigability of the river and said " that matter, therefore, we leave undecided."

The effect of the decision is, of course, to hold that as the question of navigability was not made an issue of fact, the plaintiff in error was not entitled to raise the question for the first time in the Supreme Court and require it to hold that the

river was navigable on incidental evidence received at the trial, since the issue had not been raised and the Government had had no opportunity to offer countervailing proof.

We have called attention to the fact that the navigation of the Desplaines was not confined to high water, but it is abundantly established by the decisions that if a stream is navigable for a portion of the year for sufficient length of time to answer the purpose of a common highway, it is navigable, and its navigability is not destroyed because it can not be used in other stages of the water. The question is very learnedly and ably discussed in *Brown* v. *Chadbourne,* 31 Maine 9; *Morgan* v. *King,* 35 N. Y. 454; and *Moore* v. *Sanborn,* 2 Mich. 519, which have become leading cases on the subject and cited by Mr. Justice Davis with approval in *The Montello,* supra, at page 443. See also Cooley, J., in *Thunder Bay River Booming Company* v. *Speechly,* 31 Mich. 335, p. 342; *Hickok* v. *Hine,* 23 Ohio State 527.

The District Court very aptly remarks that "controversy here has really been as to the extent rather than the fact of navigation." We submit that the navigability of the river is clearly established by the testimony taken on behalf of the appellant even without reference to any testimony presented by the Government and is beyond controversy.

Counsel has assumed that the court applies a different test to navigability in the case of the

Northwest Territory from the test of navigability generally. Very obviously, however, it did not, for it holds that the acts of 1796 and 1804 did not create navigability, but defined rights dependent on its existence. The whole effect of those enactments, therefore, was to fix the character of the streams then being navigated as public highways and assure beyond any possibility of question the perpetual character of the public easement of navigation. We submit, however, that even in the absence of such statutes that where navigability exists of such a kind as to bring a river within jurisdiction of Congress, the public easement arising from that fact can never be lost either by changed conditions, depletion, artificial impediment, changes in the mode of navigation, or other causes.

As already stated, the Desplaines was and had been navigated for over a century and a quarter by the means ordinarily employed in lake or river navigation at the time the enactments referred to were passed, and these enactments, as well as the provision of the ordinance of 1787 declaring the navigable waters leading into the Mississippi and St. Lawrence to be common highways, show that the navigability of these rivers then being used in interstate commerce was in the eyes of the legislators a matter of large and national importance and necessary to be preserved.

While the point is not involved here it may be proper to suggest that even if the stretch of the Desplaines in question had been " substantially

unnavigable without the artificial aid of canals" the fact that it served as a connection between the obviously navigable waters of Lake Michigan and the Illinois would in itself have rendered it a navigable water of the United States and within the protection of Congress. (*United States* v. *Chandler-Dunbar Company,* 229 U. S. 53, 66.)

II.

Where a stream is navigable in a state of nature, the power of Congress to protect and promote its navigability can not be destroyed by nonuser or artificial depletion.

There is an abundance of evidence furnished by the engineering experts, and in part based on gauge readings kept for a period of over twenty years, to show that in spite of depletions caused by deforestation, habitation, etc., the Desplaines remained navigable in fact, but it is submitted that neither depletion nor artificial impediments to navigability can destroy the public easement of navigation in a stream actually navigable and navigated in the state of nature. (*People* v. *Page,* 56 N. Y. 834.)

III.

The Government has never contended, nor did the court of appeals or the district court hold, that the acts of 1796 and 1804 created navigability; their effect is to define rights dependent on the existence of navigability.

The Government has never contended that the acts of 1796 and 1804 governing the disposition

of lands of the United States created navigability, but submits that the provision therein contained that "all navigable waters within the territory to be disposed of by virtue of this act shall be deemed to be and remain public highways" were enacted to make it certain beyond all controversy that the lands over which those navigable rivers flowed were subject to a perpetual easement of navigation in favor of the public. As already stated, the Government contends that where navigability exists of such a kind as to bring a stream within the jurisdiction of Congress, the public easement arising from that fact can never be lost either by changed conditions, depletion, artificial impediments, or other causes, and this quite apart from any statute on the subject. But in connection with these statutes, it further submits that were this otherwise and were it possible for any facts or circumstances to destroy, in the ordinary case, the easement of navigation, the specific provisions in these acts of Congress that the navigable rivers within the territory to be disposed of by virtue of the enactments "shall be deemed to be and remain public highways" would of its own force and effect create an indestructible public easement impossible to be lost.

The evidence already referred to abundantly established, and the courts found that the Desplaines River was a navigable stream, actually being navigated at the time of these enactments, and it necessarily follows that they are within their

scope, and that there exists over them a perpetual right of public navigation. The contention that these acts lost their force when Illinois became a State ignores the fact that at the time they were enacted the Government was the sovereign proprietor of the entire territory to be disposed of, and, in addition, Congress had not alone the powers of a sovereign proprietor, particularly those granted by the Fourth Article of the Constitution, but was, of course, in the full exercise of every constitutional power including its indubitable power to protect and preserve navigability of rivers; in these circumstances it took advantage of the situation by making the perpetual character of the easement of navigation over the then navigable rivers certain and assured beyond any possibility of doubt or question.

The Government has no doubt that in the absence of this legislation, the easement of navigation would have been indestructible, but it submits that the enactments in question put that matter beyond debate and were intended to do so.

That such enactments continue in force after a territory is organized as a state would not seem to require the citation of authorities, but we venture to refer to *Coyle* v. *Oklahoma, 221 U. S. 559,* where the court said at page 574:

> It may well happen that Congress should embrace in an enactment introducing a new State into the Union legislation intended as a regulation of commerce among the States,

> or with Indian tribes situated within the limits of such new State, or regulations touching the sole care and disposition of the public lands or reservations therein, which might be upheld as legislation within the sphere of the plain power of Congress.

The court then say, " such legislation would not derive its force from agreement or compact, but from the power of Congress over the subject." This was quoted with approval in *United States* v. *Sandoval,* 231 U. S. 28, at page 38.

The case is also obviously within the principles laid down in *Ruddy* v. *Rossi,* 248 U. S. 104, although apparently not within the doubt expressed by Mr. Justice Holmes. Unquestionably Congress could have reserved out of the territory a strip for the use of a public highway for purposes of interstate commerce or an easement over such a strip, and likewise it undoubtedly had power to make perpetual an easement of navigation over a public navigable water running through territory of which it was the sovereign proprietor and in the exercise of its other constitutional powers.

As the question of whether the ordinance of 1787 is still in force or has any legislative validity is, in view of the enactments referred to, of no importance here, the Government only suggests that while there is some dicta on the subject, the question has not been foreclosed and may well await a case in which it is vital to some decision. The provision of the ordinance, however, that " the

navigable waters leading into the Mississippi and St. Lawrence and the carrying places between the same shall be common highways and forever free as well to the inhabitants of said territory as to the citizens of the United States, etc.," is of importance, however, as showing that in the opinion of the Virginia Commissioners and the Continental Congress those rivers, although they might at places be impassable, had a vital relation to interstate commerce and to the national welfare, an opinion evidently shared by the Federal Congress which passed the acts already referred to. In the language of this court in *The Montello,* supra, " to preserve the national character of all the rivers leading into the Mississippi and St. Lawrence and to prevent a monopoly of their waters was the purpose of the ordinance of 1787."

IV.

The act of March 3, 1899, is an act for the protection of navigability and prevents impediments even in the absence of actual navigation.

On this point the Court of Appeals said, at page 799, " We think streams of actual navigable capacity but not now used for interstate commerce are within congressional power to preserve for purposes of transportation, and that the act of 1899 applies to such streams. If this is not the proper construction, very few interstate streams are within its terms." After referring to the manner in which great water routes could otherwise be de-

stroyed with the permission of the State, the court say, " Hundreds of like streams immensely important to the future welfare of the country on this theory could never come within the reach of congressional power except possibly through restoration by the States. We are unwilling to assent to this narrow view of the purpose of the act of 1899 and think it should be construed to refer to navigable capacity (which is the test of navigable water), and not rigidly restricted to streams floating interstate or foreign commerce at the time of its passage." In opposition appellant relies on two cases; the first is *United States* v. *Rio Grande Irrigation Company,* 174 U. S. 690, page 709, but in that case the court in reference to this act say, at page 690:

> The language is general and must be given full scope. It is not a prohibition of any obstruction to the navigation but any obstruction to the navigable capacity and anything whereof done or however done within the limits of the jurisdiction of the United States which tends to destroy the navigable capacity of one of the navigable waters of the United States is within the terms of the prohibition.

The language quoted by counsel for appellant is used with reference to the special circumstances of the case which were that an appropriation was being made of the upper waters of a navigable stream where it was not navigable and the court say that the question is one of fact " whether

such an appropriation substantially interferes with a navigable capacity within the limits where navigation is a recognized fact." The remanding order directs an inquiry as to whether the appropriation would "substantially diminish navigability of that stream within the limits of present navigability." *Leovy* v. *United States,* 177 U. S. 621, relied on by appellant has no bearing on this case as the act there involved was the act of 1890 prohibiting obstruction of navigation and the indictment was an indictment for obstructing navigation and not navigability. On the other hand this court in *United States* v. *Chandler-Dunbar Company,* 229 U. S. 53, applied this act in the removal of dams in a portion of St. Mary's River which in its then condition was not merely not navigated but impossible of navigation.

According to counsel's contention, the existence of obstructions to navigation of an otherwise perfectly navigable stream not only takes it out of the protection of the act of 1899 and permits further and unlimited obstructions without the consent of the Government, but places the stream beyond the control of Congress.

V.

As neither Congress nor the Illinois Legislature has consented or given authority for the building of the dam in question it is within the inhibition of the statute.

The statute specifically requires the consent of Congress or authority from the legislature before

an obstruction to navigability can be placed in a navigable stream. The question of navigability is one for the decision of this court, and when decided in the affirmative the question arises, "Is the obstruction prohibited by the terms of the act in question." If the navigable portions of the stream extend beyond the limits of the State, then the consent of Congress must be obtained. If they lie wholly within its limits, "structures may be built under the authority of the legislature" of the State. But any construction of a dam in navigable waters is absolutely prohibited unless there be "the consent of Congress" or the "authority of the legislature." The record in this case shows not only absence of authority on the part of the legislature, but an act approved December 6, 1907, specifically declaring the Desplaines and Illinois Rivers to be navigable streams and making it unlawful to construct any obstruction to their navigability and providing for the removal of obstructions then existing. In support of the point suggested, it is only necessary to refer to *Cummings* v. *Chicago*, 188 U. S. 410; *Montgomery* v. *Portland*, 190 U. S. . These cases likewise sustain the point that even if the plans had been actually approved by the Chief of Engineers and the Secretary of War, the attempted construction of the dam would have been unlawful and prohibited by the statute.

It was within the paramount authority of Congress over navigable rivers to impose any condition precedent to the building of a dam which it might deem necessary. It chose, in this present class of cases, to require authority from the State legislature. As that authority has not been obtained, the dam is prohibited.

VI.

The fact that the plans for the dam have never been approved by the Chief of Engineers and by the Secretary of War likewise brings this proposed structure within the inhibition of the statute.

In support of this point it is only necessary to refer to the terms of the statute itself.

VII.

Were it possible for the navigability of the stream to be lost, which the Government denies, and had the Desplaines ever ceased to be navigable, which is also denied, the navigability of the stream in a state of nature brought it directly within the protection of the acts of 1796 and 1804, and its augmented navigability would bring it within the terms of the act of 1899; there could be no claim that the act so applied would be unconstitutional or affect vested rights since the riparian owner under the acts in question holds its title subject to a perpetual public easement.

The practical situation with reference to the portion of the Desplaines in question is that at the time the land acts of 1796 and 1804 were passed, it was a navigable water of the United States

actually being navigated for purposes of useful interstate commerce, and by the terms of the acts, it was declared to be a permanent public highway over which the public easement was, of course, paramount. When appellant attempted to put its dam in the river, the flow had been increased by 300,000 cubic feet of water per minute, and there was flowing through the channel a volume of water abundantly ample for purposes of navigation. It was, therefore, navigable water in fact flowing through a channel made a public highway and completely within the terms of the statute quite a part from the question of the former volume. Appellant has insisted that a construction of the statute which would include such a stream would render it unconstitutional presumably as a taking of riparian rights without compensation. As the Desplaines, however, was, in terms, made a public highway, there can be no question of private rights or the constitutionality of the act of 1899 when applied to it.

While making the foregoing statement, we firmly adhere to the original ground taken that, irrespective of the land acts, as the Desplaines was navigable in a state of nature and useful for purposes of interstate commerce by the means formerly employed, its character as a navigable water of the United States could in no possible way be lost or destroyed.

VIII.

While firmly resting its case on the natural navigability of the Desplaines the Government submits that had it not been navigable in a state of nature, the navigability resulting from the addition of the waters of Lake Michigan would have brought it directly within the control of Congress and the terms of the act of March 3, 1899, without reference to the early acts.

The power of Congress to protect the navigability of waters useful in interstate commerce depends upon its possession of great constitutional powers such as the power to regulate interstate commerce.

The Government submits that in view of the record in this case showing natural navigability and actual navigation, the question of the Government's power to protect artificial navigability resulting from changes in volume does not arise but it feels itself unable to pass over or silently accept the suggestion that such a power does not exist, although a decision of the question may well be left to a case in which it is vital. In support of the suggestion, however, attention is called to *ex parte Boyer*, 109 U. S. 629, where it was held that a canal, although wholly artificial and wholly within the State, and subject to its ownership and control, was navigable water and "public water of the United States and within the legitimate scope" of its constitutional and admiralty jurisdiction. (R. 631.) The court further say that the case does not raise the question of canals used only

in intrastate business. In other words, the court distinctly place the Government's control over the canal on the ground of its being an instrumentality of interstate commerce. In *The Robert W. Parsons,* 191 U. S. 17, the court also held such a canal to be a navigable water of the United States and subject to the exclusive jurisdiction of the Federal courts. Also there is a statement in point in *Monongahela Navigation Company* v. *The United States,* 148 U. S. 312, where the court say, at page 342:

> But the power of Congress is not determined by the character of the highway. Nowhere in the Constitution is there given power in terms over highways unless it be in that clause to establish post offices and post roads. The power which Congress possesses in respect to this taking of property springs from the grant of power to regulate commerce, and the regulation of commerce implies as much control, as far-reaching power over an artificial, as over a natural highway. They are simply the means and instrumentalities of commerce, and the power of Congress to regulate commerce carries with it power over all the means and instrumentalities by which commerce is carried on.

It may be suggested here that where the court have used the words " in its natural condition " or " ordinary condition " it has used the words " natural " and " ordinary " to indicate a usual or periodic state of the water as distinguished

from unusual floods and not as distinguished from a volume due to artificial but permanent changes.

United States v. *Cress,* 243 U. S. 316, supports rather than denies this contention.* The effect of that decision was that Congress could not destroy the value of a mill and mill site on a nonnavigable creek without making compensation, but the court say at page 325 that they make no doubt that on the completion of the improvements the enlarged channels remain navigable waters of the United States for all purposes of Federal jurisdiction and regulation " notwithstanding the artificial character of the improvements; *Ex parte Boyer,* 109 U. S. 629, 632. *The Robert W. Parsons,* 191 U. S. 17, 28." These cases, we think, are authority for the proposition that any stream which has become navigable is subject to the power of Congress to protect that navigability.

Moreover the waters of Lake Michigan are public navigable waters and when diverted to a different channel, do not lose their public character and become private waters.

From what source does appellant obtain power to impound and control public waters of the United States turned into the channel of the Desplaines with the consent of the Government in aid of sanitation and commerce?

IX.

The War Department never in any way " assured appellant's predecessor that the Desplaines River was not a navigable stream," nor did it take any official action in regard to appellant's plans.

It has already been suggested that in view of the failure of the Illinois Legislature to authorize

* Refers to position stated under VIII

the construction of the dam and its affirmative action in prohibiting any obstruction in the river, it was necessarily impossible for the War Department by any action to authorize the construction of the dam here proposed.

Cummings v. *Chicago,* supra.
Montgomery v. *Portland,* supra.

Moreover, the naïve suggestion of counsel that in some way the War Department assured appellant's predecessor that the Desplaines was not navigable is sufficiently answered by a reference to the Government's opening part of its statement of facts. It will be noted that appellant's predecessor aimed at exploiting a water power created by the expenditure of about $63,000,000, raised by public taxation, and that when he set about to do so the water of the Desplaines had already been augmented by 300,000 cubic feet of water, turned in from Lake Michigan, while he himself had no interest of any kind as a riparian owner or otherwise, and the riparian owner from whom he subsequently took title had an interest only in the left bank of the stream. It is not necessary to discuss the transactions by which he possessed himself of the right bank of the stream then held by the Illinois-Michigan Canal Commissioners, nor discuss their conduct in making the transfer of the rights involved for a purely nominal consideration, when the development of the water power was obviously so essential and necessary

a part of the plan of the State and Nation to extend the Sanitary and Ship Canal and thereby complete deep waterway navigation from the Lakes to the Gulf. These acts, however, illuminate the subsequent activities of the appellant's predecessor in attempting to obtain some favorable action on the part of the War Department.

It is enough to say that Mr. Munroe approached the local engineer in Chicago, assuring him and insisting at every step that the Desplaines River was not a navigable stream. A reading of the letters of the Government officials shows that he did not ask Col. Bixby for light on that subject, but informed Col. Bixby that it was not navigable and that it was not necessary to ask the Government for any permission or authority of any kind. (Appellant has not put in evidence his letter to which the local engineer's letter referred and to which the letter of the Assistant Secretary was a reply.) They merely wished, as Col. Bixby says, to be assured that their plans were in harmony with the general plans reported by the Ernst Board. Col. Bixby recommended that if certain provisos were accepted by Mr. Munroe that he and Congressman Snapp "be informed that the War Department will waive any and all objections which it may have to the progress of such water-power dam construction." It was, in short, an attempt on the part of Mr. Munroe to get his plans approved on his representation that the river was a nonnavigable stream, and what Col. Bixby would be will-

ing to recommend upon such a representation is no index at all to what he would have been willing to do with the understanding that the stream was navigable. He was himself in no way authorized to pass upon the question of the stream's navigability. He merely said, I understand that the Government has no power in the premises; I therefore think it would be desirable for the Government to agree to waive any objection if Mr. Munroe will agree to certain things on his part. The Assistant Secretary of War responded by informing Mr. Munroe that while the work proposed appeared to be in general harmony with the improvement recommended by the Board of Engineers he was obliged to say that, as Congress had not authorized the improvement, the department " does not deem it expedient to take further and definite action in the matter of approving the plans."

Again, when appellant was informally in the Office of the Secretary of War, it informed him that the company sought no permit from the Government and declared that the Desplaines was not a navigable stream. When the Secretary asked Gen. McKenzie where the department got any jurisdiction, Mr. Snapp answered: " Let me answer, Mr. Secretary, as a lawyer; you undoubtedly have none." He went on to declare that the stream was not navigable and that they sought no permission, and the public had no rights in nonnavigable waters. The Secretary then said

that what had been done in the department was extra official beyond the authority of the Chief of Engineers, something done out of kindness of his heart.

Gen. McKenzie, testifying afterwards, said that what was said with reference to nonnavigability was based principally on the presentation made by Mr. Snapp and the fact that the Secretary did not have to decide whether it was navigable or not. After reading the record on this subject, counsel's contention that the War Department assured appellant's predecessor that the stream was nonnavigable has some elements of humor.

We note that when in October of 1907 the Illinois attorney general asked the War Department whether the Desplaines was a navigable stream, the Secretary, apparently after examining the question, answered that it was, and doubtless if Mr. Munroe had asked it the same question he would have received the same reply.

X.

No action of the War Department, even of the most formal kind, could estop the United States from asserting and protecting the navigability of a stream and from removing or preventing an obstruction to its navigability and without compensation.

The principle is well established that the power to protect navigation is illimitable and that the Government of the United States is not estopped by the action of its officials or by prior congres-

sional action. The power to prevent obstructions and promote navigation is a continuing power not exhausted by one exercise, but a sovereign power analogous in its illimitable exertion to the police power. Some of the cases sustaining this doctrine are referred to under Point X, supra.

However, no official action of any kind was here taken by the War Department, except to inform the State of Illinois that the river was a non-navigable stream.

The facts already referred to dispose of counsel's contention that the purpose of the act requiring approval of the plans had been complied with.

When the Chief of Engineers is asked to approve plans for a dam in a navigable stream, he is asked to act officially and perform a duty imposed by the act of 1899, and he approves or disapproves of the plans in their relation to the question of whether they will or will not interfere with navigation. In the present case the representation made by appellant was that the stream was not navigable and the Government had no power in the matter. He was, therefore, not asked to exert the authority conferred on him by the act in question, and, as the Secretary of War himself says, any action taken was extra official; and it is also noted that the Assistant Secretary of War in turn declined "to take further and definite action in the matter of approving the plans."

XI.

This court has never passed on the merits in the present controversy in any of its phases, but has expressly declined so to do.

Counsel maintains that this court has intimated that the acts of the War Department should prevent interference with the construction of the work. We submit, nothing could be more far-fetched.

In the case referred, *Illinois* v. *Economy Light*, etc., 234 U. S. 497, the court declined to take jurisdiction, on the ground that the issue between the State and the Company as to whether or not the river were navigable was a question of fact not reviewable on appeal from the State court. The State, however, presented an ingenious theory that the United States Government had undertaken the improvement of the river, and therefore the State was entitled to assert "on behalf of the citizens of all of the United States the right to prevent interferences with that improvement." Without passing on this very unusual claim, this court pointed out that the appropriations were not for improvements undertaken but for improvements which might be undertaken—not a jurisdiction exercised but a jurisdiction that might be exercised—and called attention to the fact that the War Department had on that account refused to take action in the matter of approving the plans, and said: "It is manifest, therefore, that the State has

no right under Federal laws which it may assert for itself or 'on behalf of the citizens of all of the United States and the motion to dismiss must be granted." (R. 524.)

The effect of the decision is that the State could not ask this court to review the question of navigability decided adversely to it in the Illinois Supreme Court, nor could it, even if such a thing were possible, assert a right on behalf of the citizens of all of the United States, based on a Federal improvement undertaken which was being interfered with by the defendant in error first, because "the State is not the instrument through which the jurisdiction can be exercised," and, second, for the reason that the Government had not in fact undertaken the improvement, and consequently there was no right under the acts of 1889, 1900, and 1902 which the State court assert "on behalf of the citizens of all of the United States," if such a thing were possible.

XII.

Under point XI counsel for appellant has contended that the portion of the Desplaines is question can not be navigable water of the United States and does not connect with any other body of water so as to make it usable in interstate commerce.

A complete answer to that suggestion is found in a reference to the evidence, showing navigation throughout the entire length of the Desplaines from Riverside to the Mississippi in connection with Lake Michigan, and the navigation carried

on between Mackinaw and the lower reaches of the Illinois River. The evidence sustaining the navigability of this reach of the Desplaines likewise sustains the navigability of the upper Illinois with which it connects, and not only does it connect with the Desplaines above Joliet, which was navigable in the state of nature, but also the Illinois-Michigan Canal which connects with Lake Michigan and the Sanitary and Ship Canal which presents deep waterway navigation between Lake Michigan and its connection with the Desplaines.

Incidentally counsel contends that the Sanitary and Ship Canal is not a waterway of the United States. He, himself, quotes from section 24 of the act of May 29, 1889, which provided, that when the channel was completed " and the water turned therein to the amount of 300,000 cubic feet per minute, the same is hereby declared a navigable stream."

As the evidence shows that the flow of water varies between 250,000 and 360,000 cubic feet per minute, it has become, by the terms of the act of the legislature itself, a navigable stream. It further provides " and when the general Government shall improve the Illinois and Desplaines Rivers for navigation to connect with this channel, said general Government shall have full control over the same for navigation purposes, but not to interfere with its control for sanitary or drainage purposes." So far as this latter provision is restrictive, it can have no effect, since the jurisdiction of

Congress and of courts of admiralty over navigable waters arises from the paramount powers conferred by the Federal Constitution and does not lie in the grant of the State Legislature. *Ex parte Boyer,* supra, and other cases cited.

It has already been noted that the concurrent joint resolution accompanying this act stated that it was the purpose of the legislature to provide a ship canal from Chicago to the Mississippi River and asked the cooperation of the General Government in the construction of the channel from Joliet to the Mississippi. Not only is the character of the Sanitary and Ship Canal as a public highway established by these acts [illegible] by its obviously navigable capacity, but this court would naturally, we think, take judicial notice of the fact that it has been actually navigated for the last nineteen years, that the Sanitary District has maintained and operated locks for the passage of the boats, advertised the advantages of water transportation in connection with the sale of lands which it was obliged to acquire by condemnation, that for years a passenger packet has navigated between Joliet and Chicago, and that in every conceivable way its character as a navigable stream has been completely established.

From all of this it is clear that not only was the portion of the Desplaines in question a part of the Chicago-Desplaines, Illinois, route used for interstate and foreign commerce through the period of 160 years, but it is now the connecting

link between the Illinois on the south and three navigable means of reaching Lake Michigan from Joliet on the north.

XIII.

The power of Congress over navigable streams does not rest alone on its power to regulate interstate and foreign commerce, but finds support also as an incident to the power to make war, to raise and support armies, and other like general powers.

In this connection, the Court of Appeals said: "It is urged that the act of 1899 was passed under the constitutional power to preserve interstate commerce, and as no such commerce on the Desplaines then existed, the statutes can have no effect, and that if the statute be construed to reach beyond this, it was to that exent beyond the legislative power. Even so, it might be regarded under the war power. We have already had a significant reminder of the inadequacy of railroad transportation in a time of stress."

As one of the primary purposes named in the preamble of the Constitution is to provide for the common defense, it seems impossible to say that the great powers to make war and raise armies given Congress in aid of that primary purpose, do not include the power to protect the navigability of the rivers and navigable waters of the United States; and this quite apart from, and independent of, the existence of a power to regulate interstate commerce. The importance of public waters to the common defense needs no argument, and that their relation to that purpose has always been

assumed is shown by the fact that from the beginning they were placed under the jurisdiction of the War Department. Their usefulness in aid of transportation continues when roads and railroads are destroyed, or are pressed beyond their capacity. To assume that navigable streams have no national importance except for purely commercial purposes, and are not within any of the powers of Congress except the power to regulate interstate commerce, is to ignore the great purposes for which our Constitution was ordained and established.

CONCLUSION.

The national importance of the Desplaines as a means of interstate commerce was recognized by the distinguished commissioners of the State of Virginia and the Continental Congress of the United States in the declaration that the navigable waters leading in the Mississippi " shall be common highways and forever free to the inhabitants of the territory and the citizens of the United States;" since it was one of the three great avenues from the St. Lawrence to the Mississippi referred to by Mr. Justice Davis in *The Montello,* supra.

The Federal Congress likewise recognized the importance of these waterways by their declaration in early enactments that they should be and remain public highways.

The river had a great, continuous, and prosperous navigation from the time of its early discovery by

the French in the latter part of the seventeenth century until its navigation was impeded by the construction of numerous dams at the end of the first third of the nineteenth century, and superseded by the superior means supplied by the Illinois and Michigan Canal.

Eight reports of Government engineers, however, declare that the portion of the river here in question is the most natural and available channel for a deep waterway connection between the Sanitary and Ship Canal and the Mississippi River, a project for completing the inland deep waterway connection between the Gulf of St. Lawrence and the Gulf of Mexico, which has been tenaciously adhered to by the Government of the United States and the State of Illinois for nearly a century.

The State of Illinois has spent over $63,000,000 for the dual purpose, as declared in the resolution of its legislature in 1889, of furnishing sanitary drainage and constructing a link in the projected ship canal. It has completed the ship canal as far as Joliet, where it joins with the portion of Desplaines in question.

The State of Illinois has appropriated $20,000,000 for the extension of the waterway through the strip in question and down to La Salle. The water power in question had no value prior to the expenditures by the State, but appellant, who had no ownership of the land until six years after the waters of Lake Michigan had been turned into the river, insists that the improvement carried out

shall insure solely to its benefit and the benefit of other riparian owners.

It contends that if not permitted to control the situation and allowed to proceed without legislative authority and without applying to the Government for permission the public will probably "lose the greatest benefits which nature has placed within their reach for years to come."

The answer to that contention is that, as decided in *United States* v. *Chandler-Dunbar Co.*, 229 U. S. 53, the manner in which water power on a navigable stream shall be developed and controlled is within the power of the Government of the United States; also the answer to the contention that the erection of a dam would be in aid of the Government's plans and in the interest of navigation, the language of the court, quoting from a former decision at page 73, is pertinent here:

> But if in the erection of a public dam for a recognized public purpose there is necessarily produced a surplus of water, which may properly be used for manufacturing purposes, there is no sound reason why the State may not retain to itself the power of controlling or disposing of such water as an incident of its right to make such improvement. Indeed, it might become very necessary to retain the disposition of it in its own hands, in order to preserve at all times a sufficient supply for the purposes of navigation. If the riparian owners were allowed to tap the pond at different places and draw

> off the water for their own use, serious consequences might arise, not only in connection with the public demand for the purposes of navigation, but between the riparian owners themselves, as to the proper proportion each was entitled to draw.

The importance of the Chicago-Desplaines-Illinois route, navigated as it was for over a century and a half as a connection between the Mississippi and the Great Lakes, and forming with them the greatest inland waterway in all the world, is sufficiently evident from the record here presented; and it is evident that the activities of the appellant have delayed the completion of deep waterway navigation for a period of at least eleven years. The increased cost of the improvement of this navigation due to this delay need not be dwelt on.

It is respectfully submitted that the navigable character of the water in question amply appears, that there is no error in the record, and the judgment of the Court of Appeals should be affirmed.

CLARENCE N. GOODWIN,
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WILLIAM L. FRIERSON,
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NOVEMBER, 1920.

APPENDIX.

Government Plans for Waterway Improvements.

By M. L. Feiser.

Development of inland water transportation through the Council of National Defense's committee on inland waterways, which is receiving the fullest cooperation of the war department's board of engineers for rivers and harbors and of the department of commerce, opens to commercial power boats a field, the extent of which no one dares guess. This development is being brought about by the tremendous amount of inland shipping that is swamping the railroads and such river craft as have taken advantage of the opportunity.

Railroads, by one means or another, have done all they could in the past to stifle inland water traffic until it fell away off, but now they find themselves unable to cope with the transportation demands brought about by war, particularly that of the freight traffic, and have, by this admission, practically appealed for help. With the demand coming from many European nations for railroad equipment and the railroads of this country making the same appeal, plants devoted to supplying these needs find themselves with really more than they can do.

This leaves but one course open, and the Government, forced by the war to recognition of the actual state of affairs, has turned part of its attention to utilization of inland waters and the craft that ply them. That is why the department of commerce has sent Walker Parker, secretary of the New Orleans Association of Commerce, as a special assistant to Secretary Redfield on a special tour of lower Mississippi River and its tributaries to study the transportation needs of those waters.

But long before Mr. Parker will be ready to make a complete report much information will have been added to the data United States Army engineers are already compiling. Mr. Parker is collaborating with the defense council's inland water committee, of which Brig. Gen. William M. Black, Chief of Engineers, is chairman and Col. Charles Keller, secretary, but the situation has been grasped by the Army engineers and already they have made much progress to show what must be done to solve the transportation problem.

> Our plans for the development of these waterways do not include actual details as to power boats, but they do include details which should make the small commercial craft very vital to the whole scheme, Colonel Keller says. "Impetus given the movement to increase inland water traffic will naturally offer the development of power boats. We already know, and will find conclusively, that river boats, particularly of the large, freight-handling type, can make

none but economical stops along a given river route. This plan leaves out many smaller points, and many small streams, which still must be served. The only way to reach these is by power craft which will convey freight to the nearest large wharving point, transfer its cargo and pick up other freight destined for its home docks. Such a scheme will have to be followed for proper utilization of our rivers.

GOVERNMENT INVESTIGATING CONDITIONS.

Colonel Keller said the committee is already investigating such inland water routes as the New York State barge canal system, the Atlantic intercostal system, and the Mississippi and Ohio Rivers. The commmittee is trying to find how much and by what means transportation is now being carried on on these waters, the amount of the floating plant, and what conditions work for or militate against further development. It is also trying to find what advantages this transportation offers shippers, what water carries are idle now and their number, capacity, description and availability for future use.

OPPORTUNITY FOR SMALL POWER BOATS.

Small craft, particularly commercial power boats, have the opportunity of now going ahead on their own initiative and creating actual needs for larger river vessels and more adequate service, Colonel Keller intimated. However railroads may have treated water transportation in the past, they are lending a hand here now, Colonel Keller says, because, he stated, Daniel Willard, who is

in charge of the transportation division of the advisory commission of the Council of National Defense, has seen to it that the railroads cooperate in moving river traffic.

As Colonel Keller says, there is much that must be done and power boats have the opportunity to do much of it. General Black and Colonel Keller are willing and anxious to do what they can to aid anyone looking to the solution of the inland water transportation problem, and can be reached at Room 122, War Department, State, War and Navy Building, Washington, D. C., headquarters of the committee. Since organization of the committee, as published in August Power Boating, R. A. C. Smith, dock commissioner of New York City, has been added.

(Power Boating, September, 1917, p. 51.)

The Honorable Joseph E. Randsdell, of Louisiana in addressing the Senate September 29, 1917, on the use of waterways a war necessity, said:

> In the official report on "Transportation by Water," published by the Census Bureau for 1906, attention is called to the fact there were a very large number of small boats regularly employed and carrying in the aggregate a large and increasing traffic for which no statistics were gathered. *Every one in the least familiar with the facts knows that the number of motor boats now in use is enormously greater than in 1906. I have been told that there are more than 1,000 on one waterway in my own State of Louisiana—the Bayou Terrebonne.* Besides those who carry freight as a business there are large numbers of farmers who use motor boats to carry their produce to market and bring home their supplies.

In short, Mr. President, the water roads are being used in the same ways as the wagon roads; every one knows that the traffic in both cases is very large, but it is a practical impossibility to get a statement of the amount. It will be seen, therefore, that the duplications in these tables are largely, if not entirely, offset by the unavoidable omissions, making the totals approximately correct.

It is entirely natural, I suppose, that our attention should be attracted to the traffic handled in the great ports and on the great waterways of the country, but we must not overlook the fact that the smaller waterways and harbors, which are scattered all over our vast territory, and which, therefore, contribute to the development and prosperity of every part of the United States, carry a traffic which in the aggregate is enormous, both in volume and in value. It is shown by the tables, which I have asked permission to insert in the record, that there are 289 waterways and harbors which in 1915 carried less than 100,000 tons each, and that the total amount of freight was 8,316,820 tons, valued at $252,968,679. What these figures really mean will be more clearly understood when I say that they are practically equal to the combined tonnage handled by Portland, Me., New Bedford and Fall River, Mass., and New London and New Haven, Conn., and to the aggregate value of the commerce of the six lake cities of Ashland, Marquette, Milwaukee, Toledo, Sandusky, and Conneaut.

And in closing he said:

Transportation is important in time of peace; it is absolutely vital in time of war.

Indeed, Secretary Baker says, and truly, "This is a war of transportation." Because our railroads are overtaxed it may depend upon our waterways whether our flag shall float in victory or go down in disaster and defeat. It follows, therefore, that every one who promotes the improvement, maintenance, and utilization of our waterways is helping to win the war, while one who takes the other course is imperiling the safety of the Nation and the future of civilization.

Bulletin of the U. S. Department of Agriculture
No. 74.

Contributed by the Bureau of Crop Estimates, L. M. Estabrook, Chief, and by the Office of Markets, C. J. Brand, Chief. December 19, 1914.

Inland Boat Service: Freight Rates on Farm Products and Time of Transit on Inland Waterways in the United States.

[By Frank Andrews, Chief, Division of Crop Records.]

RELATIVE IMPORTANCE OF RIVER TRAFFIC.

The relative importance of receipts by river as compared with the total receipts by rail and water of various farm products at leading river ports is shown in Table 1. A considerable fraction of the wheat and corn received at Baltimore, Md., comes from landings along rivers which are tributary to Chesapeake Bay and is carried partly by steamboats and partly by sail vessels. During the five years ending with 1912 these receipts by water at Baltimore ranged from 10 to nearly 30 per cent of

the total receipts of wheat and from 3 to nearly 15 per cent of the total receipts of corn.

Cincinnati, Ohio, also has a large river trade in some products, notably tobacco.

One of the principal items in the freight received at St. Louis by boat is apples, which are brought in large quantities from Calhoun County, Ill. This county, consisting of a long strip of land bounded on three sides by the Mississippi and Illinois Rivers, has no railroads and depends upon river boats for transportation. In 1911, 54 per cent of the barreled apples received at St. Louis came by river, and in 1912 the river receipts exceeded 49 per cent of the total receipts by all routes. Also, from 2 to 5 per cent of the eggs, from 4 to nearly 7 per cent of the cotton, from 1½ to 2 per cent of the sheep, and from 2½ to 3½ per cent of the hogs received at the city in 1908–1912 came by water.

Statistics of river trade at Memphis and New Orleans show relatively large receipts of cotton At Memphis during the five years ending with 1912 from 10 to nearly 14 per cent, and at New Orleans from nearly 4 to more than 7 per cent of all cotton received was carried by boat.

MARKET VALUES OF PRODUCTS TRANSPORTED BY BOAT.

Another basis of estimating the importance of steamboat traffic is the market value of products carried. The following approximate valuations are based upon average market prices at the respective cities where the produce was received, and are to be regarded merely as rough estimates. The wheat received by boat at Baltimore during

the five years ending with 1912, at average prices of southern wheat, contract grade, was worth from $600,000 to $2,000,000 a year, and the corn receipts ranged from about $200,000 to $1,000,000, according to the prices paid for southern white corn.

At Cincinnati the receipts of tobacco by river averaged from $1,500,000 to more than $3,000,000 a year in 1908–1912; the cattle, hogs, and sheep were worth, at average prices, about $750,000 to $1,250,000 per year, while the eggs brought in by boat averaged $150,000 to $250,000.

Among the receipts at St. Louis during 1908–1912 whose value illustrates the importance of river traffic are apples, with an average annual value (disregarding the abnormally low receipts of apples in 1910) of about $125,000 to $775,000; eggs, worth $150,000 to $200,000 a year; cattle, sheep, and hogs, $1,500,000 to $2,000,000; and wheat, $200,000 to $500,000.

The annual receipts of cotton by river averaged $5,000,000 to $7,500,000 at Memphis and $3,000,000 to $7,000,000 at New Orleans in the five years just mentioned. Large quantities of other farm products were also received by river at these two cities.

* * * * * * *

SOME ADVANTAGES OF RIVER OVER RAIL.

Since the river is a public highway, there is an opportunity for competition among carriers which does not exist with rail traffic. In railroad business the roadway and terminals are regularly under the same management as the trains which use them, so that competition between two or more

arriers over a single railroad is not to be ex-
ected. The fact that the river is a public high-
ay makes it possible for persons of small capital
engage in transportation. Consequently sail
essels, *gasoline launches,* and small steamboats
mpete with larger boats for the traffic on many
land waterways. Sweet potatoes, watermelons,
ain and other commodities are brought into
ashington and Baltimore from points from 100
200 miles distant by means of *sail vessels and*
wer boats. A considerable part of the produce
ld at New Orleans is brought there by small
ats, and on the river system opening into San
ancisco Bay *gasoline launches,* sailboats, and
ner small vessels also share with the regular
amboat lines in the carrying trade. *The oppor-*
nity offered to persons or companies of small
pital to engage in transportation is one of the
vantages of river over rail. These public water-
ys are used also by farmers to transport their
n produce to market.

Another advantage of the river is the *economy*
sible in a large part of the traffic, especially
ere relatively nonperishable articles are carried.
e capacity of a boat can be increased or dimin-
d greatly by attaching or detaching barges, so
a large load can be moved at a relatively low
. In a large part of its business a boat can
k much more cheaply than a railroad.

With the Bread Winners at New Orleans.

REMARKABLE CHANGE IN RIVER COMMERCE SINCE GAS ENGINES CAME—PADDLE-WHEEL STEAMERS GIVING WAY TO GAS-PROPELLED TUNNEL BOATS—POWER WORK BOATS BRING COST OF LIVING DOWN.

[By Ramon Jurado.]

The past year has seen a remarkable change in the type of power work boats in and around New Orleans. A decade or more ago, when the internal combustion engine began to replace the heavier and more costly steam plants in the smaller boats running from the Crescent City into interior Louisiana, Mississippi, Alabama, Arkansas, and eastern Texas, the stern-wheel packet idea persisted, and the gasoline freight or passenger-carrying boat was of the same type as the steamer it displaced. The heavy paddle wheel, shoving the boat ahead, crashed through the weeds of the inland bayous, or scraped over the bars of rivers and bays without more damage than a loosened wooden bar or two. The open propeller, on the other hand, entangled itself in a mass of vegetation, in the undeveloped bayous, or bent itself into useless curves and loops on the unexpected sand bars, and at low tide on the mud flats.

Then came the tunnel-stern boat, solving the water weed and the sandbar problem, and replacing, among the more progressive freighters and passenger-carriers, the stern-wheeler. A few of the old packet-like power boats remained and still ply their way to remoted settlements of the interior or to the fishing villages around the mouth of the Mississippi, but their lack of speed

and the difficulty of handling them have gradually driven almost all of the stern-wheelers from the field in favor of the screw-boats, as most of the old-time river men call the newer type of power craft. To-day the tunnel-stern combination boats, carrying freight on the lower deck and in the shallow hold and passengers on the upper deck, are being replaced by self-propelled barges to carry the freight and by craft closely approaching the cabin cruiser for the passenger trade.

Improvement of inland waterways has shown that the barge which carries its own motive power, though slower than the smaller power freighters, carries from three to ten times as much freight at approximately the same cost, and in some instances much less, than the combination boats. The barge also, being wider, longer, and of greater cargo space, draws less water than the more pretentious passenger-freight boats and, furthermore, requires at least one less in the number of the crew necessary to operate it.

These barges, which are being built to handle rice, sugar, lumber, and other commodities from remote inland points to shipside or railroad depot in New Orleans, are not sprung from the big steel barges which are being tried out on the Mississippi River in interstate trade nor to those small but similar craft which have made a success of carrying coal and iron from the Alabama fields to New Orleans. *The new barges are of wood, simply and cheaply built, some of them less than 50 feet in length, though plans for the most of those building and to be built call for craft of at least 100 feet long.*

Ungainly and far from beautiful, they depend for their existence on the development of inland waterways and the consequent necessity for cheap and capable freight transportation thereon. They appear to offer a reasonable solution for the car shortage and freight congestion problems which have done so much to retard the commerce of the lower Mississippi Valley during the past year.

Opening of inland waterways and the development of farming lands and settlements on their banks, likewise, has led to a demand from the people living in those sections for better transportation to and from their homes. Approximately 9,000,000 acres of fertile lands are being opened along the rivers, bayous, and canals of Louisiana this year; the people who are living on these lands are producing bumper crops and receiving top prices for them. If the condition of the roads is such that they can not have automobiles, and suitable train service does not reach them, they demand modern, convenient, and fast power-boat accommodations between their homes and the towns and cities they frequent on business or pleasure.

The result of this has been within the last year that a new class of passenger-carrying power boat has come into demand in this section of the South. The people no longer will ride on sacks of rice or sugar or above smelling piles of moss or palmetto fibre, nor will they loiter along good waterways at six or seven miles an hour when on the lake and river they see large passenger cruisers doing fifteen to eighteen. Hence the demand for

large cruisers, long and broad of beam but shallow of draught, which can bring one in eight hours from the mouth of the river to New Orleans or carry one across the lake at better speed than the lake steamers make.

These boats and the freight barges are bringing the agricultural territory of three States closer to New Orleans than anything else which has appeared since the introduction of the internal combustion engine, though, naturally enough, their success and growth depend on the development and improvement of inland waterways.

A TYPICAL MISSISSIPPI FREIGHT BARGE.

Of the freight barges a typical example is nearing completion for the Southern Transportation Co., in the yards of J. D. L. Mullen, on the Bayou St. John. This unwieldy appearing craft is 115 feet long, 29-foot beam, about 6 feet deep in the hold, *and draws 26 inches of water,* loaded. Her 44-inch propeller is driven by a Kenner 100-horsepower gasoline engine, and she will make six to seven miles an hour. Her capacity is *200 tons net,* and she is electrically lighted from a separate plant. She will be used for general cargo work on the river, Lake Ponchartrain, and the canals. *She is intended to be the first of a fleet of similar barges, of carrying sizes, for use in handling rice and sugar from the inland parishes to tidewater at New Orleans.*

Of the new passenger carriers, that type which provides quarters for the passengers above decks, with awnings for shelter, rather than the stuffy staterooms offered by the packet-type boats, is the

most in demand. This is an adaptation of the larger pleasure boat, of the type, for instance, of *Cavalier,* the 75 x 15-foot hunting and fishing boat belonging to Victor Camors, of New Orleans. The writer has seen her coming from the South Draw, across Lake Ponchartrain, a bitter northwester pounding her on the nose, yet never deviating from her 13-mile gait, with which she entered the draw and with which she had been coming up the Sound. For reasons of economy, these new passenger power craft, while planned along general lines similar to *Cavalier,* are being built in *50–60 foot lengths, with proportionate other measurements,* and greatly reduced power plants, owing largely to the fact that most of their running is to be in quiet waters.

The low cost of operation of the self-driven barges on southern waters may be gathered from perusal of the data gathered by the Alabama and New Orleans Transportation Company, which has been operating six of these craft between the Alabama coal and iron fields and New Orleans for something like three years. While these barges are larger and more costly to operate than the smaller craft intended for inland waterways, a fair idea of what the cost of running the new-style wooden barges will be can be obtained by comparison. No figures, of course, are available as to the wooden barges intended for local operation.

The Alabama and New Orleans Company is operating six barges, three of them 200 feet long, 32-foot beam, and 8.5 feet deep; two 220 x 32 x 8.5 feet, and one 240 x 32 x 8.5 feet. Each of these barges is driven by two 75-horsepower Fairbanks-

Morse engines, using gas produced on board from breeze coke. These engines turn two 52-inch propellers on each barge, and drive as well a 5-kilowatt generator for searchlights, lighting, interior telephones, controls, etc. Cost of the coke for each barge is approximately $25 a week of seven days. Each barge averages about 800 miles weekly, which brings the fuel cost down to a trifle more than 3 cents a mile. Labor cost per week is $125 for each barge. The round trip from New Orleans to the Alabama coal fields is almost exactly 1,200 miles. The barges are always loaded coming in from Alabama, and carry good cargoes of merchandise on the return trips. The three smaller barges can handle 725 tons of coal each; the two larger, 825 tons, and the one 240-footer, 925 tons.

So successful have been the operation of these barges that the Inland Navigation Company, which has a larger self-propelled barge operating between New Orleans and St. Louis, on the Mississippi River, has ordered two steel barges of the 240-foot size of steel barges from the Alabama and New Orleans Transportation Company's yards at Violet, La. These new barges are being equipped with three Fairbanks-Morse oil engines, of the semi-Diesel type, each engine developing 100 horsepower. They will be completed in September and will be put immediately on the run between New Orleans and St. Louis, or possibly, more northern ports.

The wooden inland waterways barges, however, with their 100 or 200 ton capacities, and necessarily shallow draught of 2 feet or less, can not compare with these huge steel power boats, though it is prob-

able that they will develop a business which, in the aggregate tonnage and in aggregate assistance to the sections they visit, will be as great as, if not greater than, that afforded by the larger self-propelled craft.

Some of the old-time freight and passenger carriers, however, are still active, popular, and making money. Among these is El Rito, one of the largest gasoline workboats in New Orleans, which belongs to the Spicuzza Bros. Transportation Company, and carries passengers and general cargo into the Barataria section, bringing back rice and other products of the swamps. She is about 100 feet long and equipped with a 100-horsepower Fairbanks-Morse gasoline engine, with separate plant for electric lighting. Her upper deck is provided with staterooms for passengers, and the lower is left open for freight. El Rito was one of the first boats on the river to be operated by an internal combustion engine, and has been running steadily ever since she was first put into commission. Few inland waterways boats have made so much money for their owners as has this clumsy looking but reliable old-timer.

OIL-DRIVEN TUGS BECOMING POPULAR

Gasoline or oil-driven tugs also are becoming more and more popular in New Orleans harbor and on Lake Pontchartrain. One of the strongest and best known of these is Tiger, properly of the Jahncke Construction Company, which handles heavy barges of sand, schooners filled with clamshells, and other schooners laden with lumber, with equal facility. Tiger is 75 feet long, 15-foot beam, and draws about 4 feet of water. She is equipped

with a 75-horsepower Wolverine engine, and is considered one of the best, if not the best, power tug in the port.

The new patrol boat of the Southern Yacht Club also is built somewhat after the manner of a tug, and has much of the work of a tug to perform in towing disabled cruisers to safety, racing schooners, machine sloops, and other sailing craft to the starting lines of races, and various similar work about the clubhouse at West End. This patrol boat is 36 feet long over all, with a beam of 9 feet, and is driven by a 15-horsepower heavy-duty Sterling engine, giving a speed of about nine miles an hour.

One of the most important classes of work boats not only in New Orleans but all along the gulf coast is that which carries the fish, oysters, shrimp and other sea foods to the market. Their importance has increased enormously since the beginning of the war, because, by the aid of the gasoline engine, they are able to add largely to the food supply of all the gulf States, while they make so much faster and more frequent trips from the fishing grounds under power than they did in the old days under sail that prices of this class of food have risen very little in proportion to those of other necessities of life. Thus, the gasoline engine has been a big factor in keeping down the high cost of living in the further south.

BOATS CUT HIGH COST OF LIVING.

New types of these boats also are creeping into the annually-growing fishing industry of the South, types which tend to greater speed and strength of hull, so that the cargo carrier, instead

of having to wait at the mouth of some river or bayou for the oyster tongers or the shrimp seiners or the fishermen to bring in their catches, can go out to sea, gather up the cargo without disturbing the work of the harvesters of the deep and then make 12 to 15 miles an hour against wind or tide back to market.

Of such as these are two boats, exactly similar in every detail, which have just been completed by Frank Maternolich, at his shipyard at Wolf River, Miss., and whose engines were installed by Arthur Duvic, of New Orleans. One of these is North Star, built for Captain Bassao, of New Orleans, and the other New Champion, built for Mreo Sumich, also of New Orleans. A description of one will serve for both.

Length, 60 feet; beam, 18 feet; draft, 4 feet. Equipped with 40-horsepower Frisco Standard engine, make-and-break ignition, separate lighting plant. The propeller is 42 inches in diameter, and, at a working speed of 12 miles an hour, the power plant will consume five gallons of oil or gasoline an hour, the engine using either fuel. The boats are of the fan-tail type, heavily built for all weathers, and cost $6,000 each. Their work will be carrying oysters, of which they have a capacity of 500 sacks—nearly 25 tons—from Louisiana Marsh to New Orleans, a distance of 110 miles.

Four men operate each boat, which must make two round trips between New Orleans and the marsh, each week. Thus their average mileage will be 500 per week; they must be out in all weathers, sometimes on the open sea, often over the marsh, and again in the river. They also aid

in dredging, while waiting for cargoes at the outer edge of the marsh. No class of work boats in the South are more strenuously used than these seafood gatherers, and none have to be built so sturdily or so well.

A similar boat, but of smaller size, is Dante, built at the same shipyards, also for Captain Bassao, of New Orleans, for the same sort of work. This boat is 40 x 14 feet, with 3-foot draught. Her power plant consists of a 20-horsepower Frisco Standard engine, installed by Arthur Duvic, of New Orleans, with make-and-break ignition system and electric light plant. Nine to ten miles an hour is produced by the 34-inch propeller, and oil or gasoline may be used for the engines, whose consumption is placed at about 3½ gallons an hour. Dante's work will be the same as that of North Star and New Champion—carrying oysters from Louisiana Marsh to New Orleans. Her capacity is 250 sacks of oysters, approximately 12 tons, and three men will handle her through her 500 miles of travel every week. Dante cost, in round figures, about $4,500. An interesting commentary on the value of these working power craft is that the owners estimate each one of them will pay for herself in six months, besides paying all expenses of the owner and crew.

Like the oystermen, the shrimp trawlers are beginning to see the advantages of this new type of boat, and are slowly abandoning the old auxiliaries—most of them merely rebuilt luggers with an engine installed—in favor of the faster gasoline boats. One of the latest of these is Peerless, built for Ole Thompson, of Biloxi, and equipped

by Arthur Duvic with a 22-24-horsepower Peerless coal oil engine, which consumes 2½ gallons of oil an hour. Peerless is 35 feet long, 10-foot beam, and draws 2.5 feet of water, so that she can pass with ease over the tide-filled mud flats where the shrimp are most plentiful. She will serve not only to trawl for the shrimp over these flats, but to carry them to market, 110 miles away, at New Orleans, for this boat is to work, also, in the Louisiana Marsh, though her owner's headquarters nominally are at Biloxi. Her capacity is 200 baskets—about 10 tons—of shrimp, and she will make 10 miles an hour, loaded. Her crew consists of four men, one more than necessary, inasmuch as all must work at trawling as well as operating the boat. Peerless is driven by a 28-inch propeller, and has her own electric lighting plant.

An interesting pioneer in this field, slightly different from either of the three just described, yet far in advance of the old auxiliary luggers, is Althea, which, for some years, has been used as an oyster and fish runner between the lower river and the market of New Orleans. The great discrepancy in this type of boat is speed, few of Althea's class being able to make more than seven or eight miles an hour, and the majority about six. The new boats, with increased speed and greater carrying capacity, should tend to hold down even more closely the cost of sea products, one of the most important factors in the food situation at New Orleans.

AUXILIARY SCHOONERS BUILDING IN THE SOUTH.

Improvement is being made, too, in the big auxiliary schooners along the Gulf coast. Re-

cently, at Biloxi, a regatta was held in which the schooner race was the most popular affair of the entire two-day meeting. From these schooners have grown the big four and five masted auxiliaries which have been built in numbers at Gulfport, Miss.; Orange, Texas; and Lake Charles, La., to carry lumber across the Atlantic and to Central America. Some of these auxiliaries cost as much as a steam freighter, one launched at Orange, Texas, recently, being valued at $300,000, and another at Gulfport, Miss., at $220,000. Both these schooners were more than 200 feet in length, were equipped with oil engines, and were of approximately 1,000 tons carrying capacity. Others of similar type are building at Lake Charles, La.; Pascagoula, Miss.; Mobile, Ala.; and Pensacola, Fla.

Gasoline-driven harbor boats, messengers, carriers of labor, water tenders and similar craft are increasing in New Orleans harbor. The latest addition to this port fleet is George S., built by the J. D. L. Mullen shipyard for George S. Schwartz, a stevedore. This boat is to be used carrying gangs of men from shore to ship and back. She is 40 feet long, 9-foot beam, and draws 2½ feet of water. She was equipped by Arthur Duvic with a 25-horsepower auto-marine Buffalo engine, turning a 22-inch propeller to produce a speed of 12 miles an hour. The ignition outfit is of the make-and-break type, and electricity is provided by a dynamo on board. Gasoline is the fuel used and 2½ gallons is consumed for every hour's run. The boat is of the hunting cabin type and requires only one man to run her. She cost $2,000 and was built in three weeks. This is the

second of these harbor boats to be put into service in New Orleans in three months.

Government boats also have been outfitted extensively in New Orleans and at Plaquemine by the Duvic Company of the Crescent City. One of the most interesting of these was a sea-going mine layer, 90 feet long, 22-foot beam, into which was put an 87-110 horsepower Frisco Standard, to drive a 54-inch propeller, produce electricity for lighting and searchlights and similar uses. The fuel to be used in this boat, whose name, obviously, can not be given, is gas distillate, and she is to have a guaranteed speed of 12 miles an hour. The boat, which was built by Thomas Favre, of Gulfport, Miss., looks like a small steamer and is intended for use in any kind of weather in whatever sea may arise.

At Plaquemine, also, is building another large boat for the Government surveyors and engineers. This craft is to be 65 feet long by 22-foot beam, and of shallow draught, so that she pass with ease over the flooded lands or into and out of the shallow bayous and bays. Mr. Duvic is installing in this boat a 65-horsepower Frisco Standard engine, to use gas distillate and to give the craft a speed of about 10 miles an hour. Peculiar conditions surrounded the installation of this power plant, inasmuch as it must be so geared and controlled that the boat can be slowed to any speed, even as low as one mile an hour, for the convenience of the surveyors who are working from her deck. This was accomplished, however, by various gears, each easily operated by the engineer on signal.

GOVERNMENT ORDERS POWER TUGS.

Eight power tugs also are to be built for the Government at Plaquemine, with engines to be installed by Mr. Duvic. These tugs will be of varying sizes and will be equipped with 20, 30, and 40 horsepower Frisco Standards, using gas distillate for fuel. Further details regarding these craft are unavailable for publication at present.

Kildeer, a 40 x 15-foot canopy launch for the use of the Federal quarantine station, has been received in New Orleans from Philadelphia. A 30-horsepower Frisco Standard was installed in her in New Orleans by the Duvic Company, and the boat, which will be used to visit ships from quarantine and similar work, has been accepted.

The lighthouse service is having built at the Algiers naval station five boats, 21 x 5½ feet, of the dory type, to be equipped with five-horsepower Fay & Bowen gasoline engines. These boats will be used at the lighthouses around the shores of the Gulf.

Users of heavy-duty power boats, whether they be for pleasure or for work, in these southern waters, have found that the speedy type of larger craft, say from 40 to 100 feet, fail to furnish the comfort needed for pleasure parties or the space and stability called for in passenger or freight carriers. The result has been the turning to a type embodied in Frisco Standard, a fishing and hunting boat recently built for Arthur Duvic by J. F. Dupre, of New Orleans. This boat, of the trunk cabin type, is intended to be used both for pleasure and for work and to combine both with the maximum amount of comfort obtainable.

Frisco Standard is 35 feet long, 9-foot beam, and draws 34 inches of water. It is equipped with a 12-15 horsepower Frisco Standard engine, which drives a 28-inch propeller so as to give the craft a speed of 9.5 miles an hour. Gasoline is used for fuel at the rate of 1½ gallons an hour, and the boat is electrically lighted and controlled, the current being made with a dynamo on board. This new boat is now at the summer home of her owner at Biloxi.

The result of all this increases the use of power boats in and around New Orleans and seems to be a sort of crystallization into specialized types for the work to be done. The coming of the war seems to have fixed permanently the place of the large auxiliary in the world's commerce, but the smaller schooner with the "kicker" commonly used for many years in the fishing industry apparently is slowly but surely giving place to the faster, more compact, more reliable, and heavier laden power boat built especially to carry sea products to the market.

The development of inland waterways, and the settlement of great farming tracts hitherto covered by swamps or forest, has led, as has been shown, to a demand for improved freight and passenger-carrying service. This has brought, as the most adaptable type of passenger carrier, the modern cruiser, of shallow draught, with most of below decks given to engine room, and the passengers riding above under the canvas top. *For the freighter, the shallow, self-driven barge, cheap but strong in construction, seems to be the last word. Secretary Redfield is now in the South, investigating the waterways situation.*

[Power Boating, Sept., 1917.]

Boats That "Eat Up" Shallow Water.

[By E. C. Bryan.]

There are many thousands of miles of shallow streams and lakes in this country, now navigated only by punts and skiffs, upon which a power-driven boat would be welcome if it could be employed.

The problem of designing a shoal draft hull is not difficult: the familiar scow is an example. When, however, it has been sought to apply power for propulsion, complications and difficulties have been met. They have been in some measure overcome by stern wheels, side wheels, aerial propellers, and water jets. All of these have objectionable features, noise, dirt, vibration, weight, wear and tear, and high first cost have prohibited their employment in small craft of any kind, in family launches, cruisers, or in the smaller work boats. The submerged screw propeller is the favored and most efficient mover of water-borne craft, and its application to the driving of hulls in shallow waters is the only method by which the demand for efficient power boats for recreation and pleasure or business upon such waters can be met. It is well known that the draft of the normal modern motor boat is not in the hull itself. *The diameter of an efficient propeller submerged a proper distance below the convex keel is the thing which demands the depth of water. The propeller must be submerged. The rare instances in which partially submerged propellers are being used are not in the province of this article. How to submerge the propeller*

and at the same time lessen the draft is the problem which was solved by the invention and development of the tunnel stern.

This type of boat will be a tremendous factor in opening up an immense undeveloped area of lakes and rivers to power boating. They have been regarded only as a deformed skiff or punt. The fact is that every line of grace and beauty possible in any boat can be reproduced in them. Their use is not confined to shallow waters, as they have been found unexcelled in such waters as Lake St. Clair and the Detroit River at their roughest stage. So far as speed is concerned, the open boats of the present type have nothing on them. To illustrate, the Bryan Boat Works at Wyandotte, Mich., have one which they built, a 20 feet by 4 feet 6 inches, powered with a Kermath 12 H. P. It gives them 14 miles per hour. Anything of the same size doing as well is considered a smart boat. We've chugged up a little Canadian river with this boat until we came to parts so narrow that we had to climb overboard and lift the bow around to retrace: The natives, like the countryman at the circus who exclaimed as he looked upon the giraffe, "taint so; there ain't no sech animil," seemed to doubt the evidences of their eyes and refused to accept as a boat a craft which paddled around in waters theretofore navigated by nothing drawing more water than a coot.

The tunnel is a concavity which is formed by the up bending of the keel ribends and planking of the after under body.

The extent of the up bending is determined by the diameter of the propeller, and this by the character of the power employed.

The average depth of the propeller is 2/3 of its diameter, thus in a 45-foot cruiser, powered with a 24 H. P. heavy duty motor turning a 30-inch propeller. Seventy inches of water is required for its turning, and the 25-foot open launch driven by a motor turning a 16-inch wheel is successfully navigated in 12 inches of water. The propeller, however, is not the only factor in determining the area and form of the tunnel. The forward slope must not be too steep or the resulting drag will impair the efficiency of the wheel, and the after slope must be of such form as will alow a ready clearance of the water thrust off by the propeller and moved by the stream lines.

The designing of the entrance, providing for an easy run, estimating the displacement and trim, and giving the boat the ample initial stability which is such a valuable, but too often illy handled factor in small boats, are all problems especially important in tunnel stern design.

There is no reason why the tunnel stern launch or cruiser should not be an excellent sea boat. Such craft are capable of splendid performance under most trying circumstances.

[Open Exhaust, Feb., 1914.]

Motor Craft of Chesapeake Bay.

[By Stuart Stevens Scott.]

The Chesapeake region, that area of tidewater land along Chesapeake Bay which divides the State of Maryland and penetrates deep into Virginia, has felt the influence of the commercial

motor boat as have a few other sections of this country. This may seem a bold statement, and yet statistics will go a long way toward proving it, while even a brief visit will give an optical demonstration.

* * * * *

Prior to the gasoline engine the farmers of tidewater land had sailing craft to depend upon for carrying grain and such cargoes as would not be injured if delayed in transit. Only the farmers close to steamboat wharves could hope to send produce to the cities of Norfolk and Baltimore, and even then in limited quantities, for freight rates were high and steamboat schedules were such as to make the sending of produce risky.

* * * * *

Tidewater Maryland and Virginia have been regenerated. To-day the Chesapeake region is a garden spot. Great truck-patches have taken the place of countless acres of virgin forest and old farms, and it is all due to the gasoline-propelled craft that chug in an endless procession.

Few, indeed, are the farmers of the Chesapeake region who do not own a motor boat, not as a pleasure craft but as an adjunct. In a region so interspersed with streams as to make a boat almost as necessary as a horse and carriage, it is but natural that the people are only too glad to avail themselves of a cheap means of transportation over the liquid highways.

The best evidence of their willingness is that there are within the Chesapeake region fully 10,000 motor boats, and of these, it is safe to say, 80 per cent are used for business purposes.

* * * * *

I said there were fully 10,000 commercial motor boats in the Chesapeake region. I have before me a letter from the Department of Commerce, dated March 18, which reads:

"In reference to the request for the number of boats in the Chesapeake region, this office advises you that the number of motor boats documented on June 30, 1912, at the several ports from Washington, D. C., to Cape Charles, inclusive, were as follows: 14 motor boats over 50 tons; 587 motor boats over 5 tons; 9,148 motor boats under 5 tons.

"All of these motor boats, with the exception of those under 5 tons, are in commercial use. The 9,148 motor boats under 5 tons include yachts and vessels in commercial use."

The above figures give a total of 9,749 craft a year ago. With the natural increase, and taking it for granted that some were missed in the tally, the round number of 10,000 is not far wrong.

(National Waterways, July, 1913, p. 419.)

See "Power Boating's Prize Workboat Design," Power Boating, March, 1918, for design of power work boat 60′ x 16′, with displacement of only eighteen inches, 42,000 pounds; deadweight, 25,000 pounds.

[Motor Boat, Oct. 10, 1918, p. 48.]

"An Interesting Air-Propelled Motor Boat."

The use of air propellers is becoming more general. The navigation of very shallow streams, and of waterways infested with weeds, is made possible with hulls which draw only a few inches

and which have air propellers in place of the submerged wheel.

One such boat is shown and described. "The main hull is 20 feet long and 37 inches wide, and is equipped with pontoons which prevent it from tipping over when making turns. We use an 80-horse power Gyro motor with an aerial propeller eight feet three inches in diameter. The entire weight is about 750 pounds. The main hull is 14 feet deep. *When running at from 40 to 60 miles an hour our main hull draws about an inch of water.*"

There are a good many air-propelled boats in service in this country on the shallow waters, but there is a much greater demand for these boats in South America. In Colombia, for instance, they have been used for the delivery of mail and other purposes.

The Present Aspect of the Mississippi River Problem.

[By Robert S. Taylor, of the Mississippi River Commission.]

* * * * *

"One further thought, not for its utility but its inspiration. The big dredge has a little brother lately come into the world but destined to work a mightly revolution in waterway transportation. It is the gasoline-motor freight propeller, scarcely larger than an automobile, with its little, flat, shallow scow—the cheapest craft ever floated, a mere box, satisfied with a foot and a half of water, pushed ahead or towed behind, and carrying a few tons of merchandise. It is a true

aquatic truck, scarcely more costly than a good team and land truck, and requiring only one man to own and run it. He is in truth

> * * * a cook and a captain bold,
> And a mate of the Nancy brig,
> And a bo'sen tight, and a midshipmite,
> And the crew of the captain's gig.

"This little craft has been coming into use lately on the bayous and small streams of the alluvial valley in increasing numbers. That we shall have in the future abundant supplies of fluid fuels and simple engines for using them is not to be doubted. We have been hearing for twenty-five years of the 15,000 miles of navigable channels of the Mississippi and its tributaries. We have taken it as an innocent exaggeration. But these little motor boats, between the Alleghenies and Rockies, and Canada and the Gulf will find all that and more. With their cousins on land next to come—the trolley freight lines, they will gather the productions of that great watershed into the hulls of its big boats as the Lord gathers its rainfall into the channels of its big rivers."

○

Supreme Court, U. S.
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No. 104

IN THE

Supreme Court of the United States

OCTOBER TERM, 1920

ECONOMY LIGHT & POWER COMPANY,
Appellant,

vs.

THE UNITED STATES OF AMERICA,
Appellee.

APPEAL FROM THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SEVENTH CIRCUIT.

REPLY BRIEF OF APPELLANT TO THE BRIEF FOR THE UNITED STATES

FRANK H. SCOTT,
Attorney for Appellant.

W. F. ROBERTS CO. WASHINGTON D. C.

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IN THE

Supreme Court of the United States

OCTOBER TERM, 1920.

ECONOMY LIGHT & POWER COMPANY, *Appellant*, *vs.* THE UNITED STATES OF AMERICA, *Appellee*.	No. 104.

May it Please the Court:

The argument under point III of the Government's brief beginning at page 154, as to the effect of the Acts of 1796 and 1804, confuses the issue. Counsel discuss their effect on streams "actually being navigated at the time of these enactments," and say that Congress "took advantage of the situation by making the perpetual character of the easement of navigation over the then navigable rivers certain and assured beyond any possibility of doubt or question" (Br., p. 156). No Act of Congress was needed to effect that purpose, as to rivers actually navigable within the definition laid down by this Court. If the Desplaines were navigable in that sense, neither counsel nor the Court of Appeals would have had to invoke those early Acts or the ordinance of 1787 to sustain the decree in this case. The Government must face this question: Can a river be held to be navigable under those early Acts of Congress and that ordinance, which would not be so held except for them? When counsel use the term "then navigable"—speaking with reference to the time of the early Acts—they mean, not navigable within any definition of navigable waterways of the United States, but streams

upon which hunters and explorers could, with whatever amount of difficulty, at times pass their small craft. But, as Mr. Justice Miller said in *Duluth Lumber Company vs. St. Louis Boom & Improvement*, 17 Fed. 419, when he held the St. Louis River to be non-navigable, "that has nothing to do with the great point of the navigability of streams of the United States concerning interstate navigation or international navigation." And in dealing with precisely the same contention as is put forward in this case by the Government, but in connection with a stream which had been much more extensively used, and in fact even by small steamboats, Mr. Justice Miller said:

"Something is said in this case about the organic law admitting the State into the Union; about the old Act for the Government of the Northwestern Territory. We have long ago decided that the original Act concerning the Northwestern Territory ceased to be of any force when Congress and the State chose to organize and admit the State into the Union. That ordinance, then, is of no force in such a State."

The cases of *Coyle vs. Oklahoma*, 221 U. S., 559, and *United States vs. Sandoval*, 231 U. S., 28, cited by counsel, we have dealt with in our original brief (pp. 53-54).

The case of *Ruddy vs. Rossi*, 248 U. S., 104, cited in the Government's brief, upholding Congressional restriction of alienation of homestead after the conveyance by the United States in fee simple has no application to the instant case. The contention of the Government here is that the United States might retain sovereign—not proprietary—rights in land included within a new State.

The contention is directly in the teeth of the Act of Cession of the State of Virginia, which ceded the Northwest Territory to the Union upon the express condition that the Territory so ceded should be laid out, and

formed, into States, and that the States so formed should be admitted members of the Federal Union "*having the same rights of sovereignty, freedom and independence as the other States.*" It further provided that the lands within the Territory so ceded (excepting certain lands appropriated for bounties to officers and soldiers of the army), should be considered as a common fund for the use and benefit of such of the United States as had, or should, become members of the Confederacy and should be faithfully disposed of for that purpose. Under this deed of Cession the United States had no power to reserve such an easement as is contended for. It had no such easement in unnavigable streams and carrying places in the old States, and the new States so created stood precisely, in that respect, on the same footing as the original States. It was not even competent for it to retain the title to the beds of navigable streams, ownership of the beds of such streams, above tidewater, being one of the sovereign rights of the original thirteen States. See cases cited in original brief, page 39.

I

As to the Government's analysis of the evidence

Appellee confuses the issue by asserting that appellant "rests its case upon the conclusions of the Supreme Court of Illinois, in a case to which the United States was not a party, and in effect ask the reversal of the District Court and the Court of Appeals on the ground that they do not harmonize with the conclusions of that court." Such is not our position. We consider that the opinion of the Supreme Court of Illinois should have great weight, assuming that the facts of both records are substantially the same, and we insist that they are substantially the same. In this we are sustained by the Court of Appeals.

The decision of that Court did not recognize that the difference was such as would warrant a different conclusion. In fact, in the opinion it was stated that:

> "The difference in the record in the two cases would not, perhaps, warrant a different conclusion, although the evidence here is somewhat stronger in favor of navigability than in that case. Taking as we do a different view as to the force and effect of the historical facts of the early use of the river, and being clear that it is in fact a navigable stream, we feel that we should follow our own views." (p. 3372, Abst.)

The different view which the Court of Appeals took from the Supreme Court of Illinois clearly appears in the opinion of the former court. It was its opinion that any stream which was valuable for floatage, or was used by traders or trappers, prior to the Ordinance of 1787, or the early Acts of Congress for the government of the territory, had by that Ordinance and those Acts been stamped with the character of navigability, which made them for all time navigable waterways of the United States. That view was not held by the Supreme Court of Illinois, and we think we have demonstrated its incorrectness in our original brief.

Counsel for the Government devote a very large, if not the larger part of their brief, to an effort to show material difference in the records of the two cases. They endeavor to get away from the conclusion of the Court of Appeals in that respect, and we think it is because they recognize that the legal deduction drawn by the Court of Appeals from the facts, as proved in both cases, cannot be sustained in law.

At pages 108 to 117 of our original brief we referred to

every instance of use, or attempted use, of the Desplaines River shown in the record in this case, which did not appear in the record in the State case. And, we showed that the additional matter was in the main a record of failures in the attempts to use that river. Counsel have, however, gone into analysis of the experiences of early explorers and traders upon that river, and have referred to many compilations by persons who had no familiarity with thevicinity in question. in the effort to show a general use of the Desplaines in early days. Although we insist that the statute under which this action was brought, refers to commerce, as that term is understood in modern times, and not to the experiments of such early voyagers, we still feel constrained to refer to counsel's analysis of that evidence for the purpose of showing that it is not accurate, and that many of the sources to which they refer prove that the Desplaines in its natural condition was not navigable in the sense that it could be generally used, even for the purposes of those early adventurers.

The conclusions of Dr. Thwaites and Prof. McLaughlin were based on extracts from various works submitted to them by the Government, which constituted part of the material collected and relied on, by Prof. Alvord. They made no independent study of the question. (See our original brief, p. 160.) Alvord had made an exhaustive study of the subject, for he had testified at great length in the State's case against this appellant, and had made a further investigation for the purpose of preparing himself to testify in the instant case. As an impartial historian, it was reasonably to be expected that when he gave excerpts from narratives he would not confine himself to such portions as seemed to aid the Government's case; that when he made, or used translations,

they would be correct translations; and that in dealing with compilations he would have used some effort to ascertain from what sources the information therein contained was obtained. He did none of these things. In his testimony he used excerpts from narratives to support conclusions which were wholly refuted by other portions of the same narratives, to which on his direct he did not refer. He used translations the inaccuracies of which had been pointed out by other historians, which inaccuracies concerned the questions at issue herein, and they effected the validity of his conclusions. He introduced like inaccurate translations made by himself. He knew of the existence of accurate translations which he did not use. He introduced, and relied on, preposterous statements to prove that the Desplaines had been navigated, such as that in Woodruff's History, which referred to steamboats plying the Desplaines to Chicago in 1878, which if true would have involved their climbing over dams and crossing dry land.

In our reply brief in the Court of Appeals, we called attention to this misuse of historical sources by Alvord, but Government's counsel in their brief here still adhere to statements made by him, which do not correctly represent the sources on which he relies, and which, if left unexplained, must necessarily mislead.

We will now, therefore, as briefly as possible, analyze Alvord's statements, the sources on which he relied, and counsel's synopsis of them.

The translation by Alvord of page 125, 2 Margry, in which is related La Salle's opinion of the Desplaines, is illustrative of his method. In the translation which he introduced on the direct appeared the following: "When ice is formed there is no longer water in the Chicago River." (Abst., 35.) The word "Chicago" here is ad-

mitted by all to refer to the Desplaines. Of course, the passage, as translated by Alvord, suggests lack of water in winter, the season when there is no navigation. As a matter of fact, and as admitted by Alvord on cross-examination, the meaning of the original instead of being "when ice is formed." is "when the ice is melted." (Abst., 296.)

In the same translation (Abst., 35) La Salle is made to say that in summer "there is not *enough* water in the river," while in fact he said "there is no water *at all* in the river." (Abst., 295.)

In the same translation as given on the direct appears the following: "The Chicago (Des Plaines) River is not even navigable for canoes except after flood." This appeared as an entire sentence. As a matter of fact it was an inaccurate version of the last part of a sentence. A correct translation of the phrase in which it appears is as follows:

> "and then if one should persist in this communication by means of ships, as they cannot navigate in the lakes before mid-April because of the ice and often even later, and because *never at this season nor afterwards the rest of the year*, is Chicago (Des Plaines) navigable even for canoes unless after *some storm*." (Abst., 296.)

Other erroneous translations of La Salle's narratives will be referred to herein later.

Further, the inaccuracy of Alvord's work, and the invalidity of his conclusions appears from many of his statements. For instance, upon the direct he introduced and construed the meaning of certain passages from a letter of La Salle's which he had translated, and he emphatically declared that in those passages La Salle was comparing the Kankakee and the Desplaines routes. He said

he based that conclusion upon an examination of the entire document, and considered the particular passage in relation to the whole contents. (Abst., 32-36.) He insisted upon this strenuously under cross-examination. As a matter of fact there was no reference in the document to the Kankakee. The portion of the letter which Alvord assumed referred to the Kankakee, clearly referred to a passage up the Ohio and the Wabash to Lake Erie. He admits this (Abst., 178-179) and says that he "should have glanced over the next page and would have seen that the river he referred to is by the Ohio."

The passage from Turner's "Character and Influence of the Indian Trade in Wisconsin," referred to by Prof. Alvord, does not mention the Desplaines River, and its reference to a *general route* whereby it was possible to reach the Mississippi from the Wisconsin country, as being "By the Chicago River to the Illinois" supports no inference as to the use of the Desplaines River itself as an avenue of trade and commerce. Prof. Alvord admits that pack horses were largely used throughout the west in the fur trade of the latter part of the 18th and the first part of the 19th centuries. (Abst., 267-268.) Hubbard, when he became superintendent of the American Fur Company, abandoned all attempts to use the Desplaines, and went to and from the Illinois with pack horses. Before 1820 wagons were used to transport boats from the Chicago to the Illinois (Abst., 116).

The excerpt from "The American Fur Trade in the Far West" by Chittenden, on which Alvord relies, likewise does not mention the Desplaines River, nor can it be any evidence of the use of that stream as a carrier of trade and commerce.

Counsel quote from Marquette's narrative of his expedition of 1673 in such fashion as to convey an impression

that Marquette easily traversed the waters of the Desplaines to Lake Michigan from the lower Mississippi River. A fair reading of the entire excerpts presents no proof whatsoever of his use of the Desplaines River. The account offered by Prof. Alvord (Abst., 23) discloses that "another river" which left the Mississippi at about the 38th degree is the Illinois and not the Desplaines. Marquette says it is "wide, deep and still" for 65 leagues (which description never has applied to the Desplaines), and that they found on it the Indian village of Kaskaskia (which no one has ever placed on the Desplaines River but which was in the neighborhood of Ottawa) from whence he was *escorted* by the young men to Lake of the Illinois (Lake Michigan) (Abst., 23.) Marquette speaks of the ease of a portage of 30 leagues (Abst., 1461), carrying his canoe, and it is a reasonable conclusion, from the fact that his journey was made in September, that when the young men of Kaskaskia village escorted Marquette's party to Lake Michigan they *probably* portaged the whole or most of the length of the Desplaines River. His equipment was of the lightest and easy to transport. (Abst., 1532.)

Alvord, contrary to the plain meaning of the context, insisted that Marquette's statement that "In the spring and during part of the summer there is only one portage of half a league" (Abst., 23) referred to the Desplaines. The Government quotes this in its brief (p. 38). Marquette was referring to the Illinois from about where Ottawa is now situated to the Mississippi. (Abst., 211.)

Counsel say of La Salle's trip of 1681, simply that he "went up the Illinois River to Lake Michigan in search of Tonty."[7] La Salle returning from Canada by the much longer St. Joseph-Kankakee River route, found the Illinois village near Fort Creve Coeur (near the present site

of Peoria) (Abst., 29) sacked; went on down the Illinois River to the Mississippi in search of Tonty, and returning back up the Illinois and to Lake Michigan. On cross-examination Alvord admitted that there was no proof that La Salle went to Chicago, or any particular distance up the Desplaines, his ultimate destination being the fort on the St. Joseph. (Abst., 28.) *It is explicitly stated that suffering great hardship he went on foot,* the river being frozen. This journey, therefore, could have nothing to do with the use of the river in boats. (Abst., 1609, 32, 33.) Alvord says he did not put this instance in as being of much use. (Abst., 214.)

Of the "similar" trip which counsel say Tonty made, the account, ascribed to La Salle (Brf., 7, Abst., 29) simply says that Tonty "ascended this river without leaving any signs of his passage." Tonty himself, writing of the journey, simply says, "We made our portage." (Abst., 30-31.) No other account of this journey is more explicit. We do know, however, from the context of all these accounts, that the journey was made in the late fall or early winter, because Tonty reached the Pottowatomi village, further on, in December. From our knowledge of the usual stage of the river at this season, it is reasonably certain the portage was a large portion, if not all, the way from the mouth of the Desplaines to the Chicago. The accounts of Joutel (Abst., 1922, 1736, 1741, *et seq.*), Charlevoix (Abst., 58, 266, 1405, 1406), Hubbard (Abst., 1509 *et seq.*) Schoolcraft (Abst., 1569 *et seq.*), Graham and Phillips (Abst., 1403), La Salle (Abst., 257, 294), St. Cosme (Abst., 1692), Joutel (Abst., 1742), Tanner (Abst., 3253-3256), and others, elsewhere presented in the briefs, support this concluson. (Abst., 1608.)

Alvord's statement that La Salle and Joliet were not in disagreement as to the use of the Desplaines for commerce

in small boats and canoes, is not correct. La Salle expressly stated that the river *was not even navigable for canoes*, except after some storm. (Abst., 257-258.) He said it would be better to use horses, or go around by the Kankakee.

Alvord's statement that La Salle's rejection of the Desplaines in favor of the Kankakee route was due to prejudice against Joliet as a Jesuit, and La Salle's interest in diverting the fur trade of the Illinois country to the Gulf, is quite beyond reasonable defense. It was of vital importance to La Salle, and to the welfare of his post on the Illinois, that he should avail himself of the most direct route to, and from, Canada. It is inconceivable that he would use as he did use, the St. Joseph-Kankakee route, if the Desplaines River route, more than two hundred miles shorter, were available, and this simply because he was prejudiced against the Jesuits. (Abst., 279-1601-1604.) Each route brought him to Marquette's mission, which was not at Chicago, but at Kaskaskia (not the Kaskaskia of later times) on the Illinois, in the heart of the field of La Salle's operations, and at the very door of his capital, Ft. St. Louis. (Abst., 1604.)

Joliet is known to have passed through the Illinois country but once, whereas La Salle is known to have been intimately familiar with it over a period of many years. As to Joliet we have only Frontenac's understanding of what he is said to have related, while as to La Salle we have his own account, with his reasons in great detail for his disagreement with Joliet.

Counsel (Br., p. 41) refer to *Joutel's Journal* of La Salle's last voyage as one of Alvord's sources showing the use of the Desplaines River. *One of Alvord's grossest inaccuracies was in connection with the account of Joutel's journey.* He used in part a poor, or rather, garbled trans-

lation, which omitted entirely the portion of the narrative which tells how Joutel came from the Illinois to Chicago. He also used in part the French work of Margry which is correct, but he did not refer to that portion of the latter which tells the true story of Joutel. *The "Government brief" refers only to the journey referred to in this garbled version of the journal. Joutel's experience, as it appears in the correct translation, showed that the Desplaines in its natural state was generally incapable even of canoe navigation.*

In the original French in Margry, Vol. 3, page 480, but not in the translation used by Alvord, it appears that Joutel and the remainder of La Salle's party were at Fort St. Louis (Starved Rock) and desired to go to Mackinac. They arranged to have Indians carry their goods to Lake Michigan, 30 or 40 leagues, for the reason that at that season there was *"no water at all in the river, or at least very little, this being a troublesome matter."* (Abst., 1741, 1742.) Just as they were about to depart three men arrived from Mackinac whence they had come by lake to Chicago, *and leaving their canoe there* they traveled on foot to Ft. St. Louis. It was arranged that Joutel's party should trade their canoe for the one left by these men at Lake Michigan. *In the narrative used by Alvord it was stated that these men came in December, and that they failed to carry their goods in a canoe down the Desplaines because the river was frozen. The Margry edition shows that the month was September, and the reason was not that the river was frozen, but that there was no water in it.* Joutel's party traveled on foot to Chicago There they found the canoe which the Frenchmen had left in the lake, embarked in it, undertook their journey, failed, turned back and made their way to the fort on the Illinois, *leaving their canoe at Lake Michigan.*

Here were two trips, therefore, made over land by Joutel and his party for a distance of 30 or 40 leagues, and although, having canoes, they did not use them because there was no water in the river. (Abst., 1739, 1744.)

In the following spring they returned to Chicago with a canoe, but when they came to the Desplaines, which is described as "a rapid stream" they were obliged to go ashore and then again into the water to draw along the canoe, and the narrator says that they were "under a necessity of going often into the water." *This third trip alone is referred to by Alvord on his direct* (Abst. 44-45; and is the only one referred to in the Government's brief. Counsel say (Br., p. 40):

> "Government introduced a map by Father Hennepin published in 1683, which shows the Chicago-Desplaines-Illinois route connecting Lake Michigan with the Mississippi; the Chicago-Desplaines portage is also shown."

They omit any reference to Hennepin's description of the Desplaines, which certainly should be considered in connection with his map. He said:

> "The creek through which we went from the Lake of the Illinois, into the Divine River, is so shallow, and so much exposed to the storms, that no ship can venture to get in, unless it be a great calm. Neither is the country between the said creek and the Divine (Desplaines) River, fit for a canal; for the meadows between them are drowned after any great rain, and so a canal will be immediately filled up with sands; and besides, it is impossible to dig up the ground, because of the water, that country being nothing but a morass; but supposing it were possible to cut the canal, it would be, however, useless; *for the Divine River is not navigable for forty leagues together;* that is, from that place to the village of the Illinois,

except for canows, who have hardly water enough in summer time. Besides this difficulty, there is a fall near the village." (Abst., 38.)

Counsel say (Brf., p. 41) that Champigny wrote Louis XIV stating that Tonty and de la Forest had a warehouse at Chicago and another at Michilimac'.inac. The statement is in a communication dated 1697, and is that "they now have a warehouse at Chicagou, in the country of the Miamis." Counsel ignore the admittedly general application during that period of the term: "Chicagou," and its variations, to the region to the south, southeast and southwest of Lake Michigan (Abst., 227) and the fact that the Miamis were generally located around the St. Joseph and to the southeast of Lake Michigan. (Abst., 206-208, 210, 261, 262, 263, 264.) The fact was that at this time *there was* a post at St. Joseph which had been erected by La Salle (Abst., 228) and in view of all the circumstances, it is but reasonable to suppose that this was the post of Tonty and de la Forest, to which Cadillac referred.

Counsel next take up the narrative of St. Cosme's journey. (Bf., p. 41.) *It is one of the most persuasive source evidences that the Desplaines was not, in its natural condition, capable of even canoe navigation, except during short periods of flood.* We ask the court to compare the statement made concerning it in our opponent's brief with the narrative itself as it appears on pages 48 to 51 of the abstract. It is an excellent illustration of how inadequate and one-sided their statement of the evidence is. They say Shea (an historian)

> "gives an account of St. Cosme's going down the Chicago Des-Plaines route. He left Chicago October 29,

1700, made a portage 'which is three leagues long, when the water is low and only ¼ of a league in the spring.' P. 49."

The portage here referred to was from the Chicago to the Desplaines River. *When the party reached the Desplaines River it was compelled to make a portage all the way to the Illinois.* "They saw well that being obliged to carry their effects and canoe it would take them a great while to reach the Illinois." They dragged their canoe because there was no water. "You always make a portage, there being no water in the river except in the spring." The men "marched on land, each with his pack." From Chicago to the fort they reckon 30 leagues. "Here navigation begins." It took St. Cosme's party fourteen days to go from Chicago to the mouth of the Desplaines. And when St. Cosme returned over this same route in the spring his party did not use the river at all, but walked from approximately the region of Starved Rock. (Abst., 1565.)

It is next stated by counsel (Brf. 42) that Thwaites' Jesuit Relations contains a letter from Father Gravier which the witness says indicated he used the Des Plaines route September 8, 1700. There is in the excerpt no such reference. It is a mere inference of Alvord's from Father Gravier's statement that he had received a letter at "Chikagoua"—"whence I started on the 8th of September to come here," that is, to the Guardian Angel Mission. (Abst., 203.) The location of this mission has never been accurately established. (Abst., 202-208.) There is not the slightest evidence that it was on the Illinois or the Desplaines. Thwaites says that in his opinion it was at Chicago, but in the index to his Jesuit Relations it was referred to as being on the St. Joseph. (Abst., 378.) And in 1 Jesuit Relations, 223, Thwaites fixes it as being in the lower peninsula of Michi-

gan. (Abst., 204-205.) The only value this excerpt has lies in the fact that it illustrates how far afield Alvord went to establish the historical use of the river.

Next counsel referred to a rough draft of a report by James Logan in "Chicago Antiquities." Logan probably never came further west than Philadelphia. He was simply an ill-informed writer of the period. (Abst., 1538.) Dr. Thwaites said he would consider that Logan's report was made by a man not personally familiar with the western country. (Abst., 363.) In this same report, Logan describes "Fort Miami" as on the mouth of the Chicago River (Abst., 57), and thereby discloses his ignorance of the facts, because there was no fort at Chicago at that time. (Abst., 1870; Abst., 52, 198.) Fort Miami was a well known fort at the St. Joseph River on Lake Michigan. (Abst., 198-199, 454, 460.) Logan's description of what counsel interpret as the Chicago-Desplaines portage, accurately described the St. Joseph-Kankakee portage (Abst., 306-307) and it is clear that his information was with reference to the latter (Abst., 454 *et seq.*), and that his application of the term Chicago to the St. Joseph River reflected lack of knowledge, or the intentional use of the word as applied to the St. Joseph, to which it was not infrequently applied during that general period. The Kankakee is really the upper Illinois, and it was often included in the designation of the "river of the Illinois." It is important to note that this report of Logan's which clearly applies to St. Joseph, and not to Chicago, was adopted by other writers whose works have been introduced by the Government and which are referred to in its brief, and by repetition of the same erroneous report in various books and pamphlets, an imposing mass of misstatement has been introduced into this record.

Charlevoix (Brief, p. 143) is next referred to in the

Government's brief, but if the court were left to rely only on that reference, it would have little understanding of the significance of the excerpts from Charlevoix's letters which were read in evidence. The Government's historical excerpts (Abst., 389, 266, 431) *relying on an incorrect translation made of his narrative in 1761* say that Charlevoix was turned aside from his use of the well known Chicago-Desplaines route because of a storm which hindered his going around the southern end of the lake, from the eastern shore.

The translation of 1761 omits Charlevoix's statement that he took the St. Joseph route which was much longer, because the Desplaines was "but a brook." (Abst., 58, 1187.) Prof. Alvord, who introduced the translation of 1761, knew of this omission. He had used the correct translation of 1763 (Abst., 1187-1189) in the State case. Counsel say "The foregoing not in the State case." The erroneous translation was not, but the correct translation was. Charlevoix's account (Abst., 59) of the difficulties of the St. Joseph-Kankakee route, and what we know of its very much greater length, forces the inference that the difficulties of the Desplaines route must have been very great indeed. (Abst., 1406-1408.)

Mitchell (Brf. p. 43), who in 1757 said the French, in their fur trade, had hitherto been obliged to go by the great lakes and "down the river Illinois into the Mississippi," does not thereby shed any light upon the use which was made of the Desplaines River in traversing a route he designates so generally as to include the Kankakee-St. Joseph Rivers. There is no evidence that he ever saw the Illinois country much less than the Desplaines River.

Dupratz (Brf. p. 44; Abst., 66) also makes a general statement in his book published in 1774, that the first

travelers came from Canada, by way of the Illinois into the Mississippi. No mention is made of the Desplaines. Dupratz is not shown to have been north of the Ohio River, and what he says is a mere second-hand statement of a general route. (Abst., 1433-1434.)

Choiseul, who wrote the memorial in which is the reference to the portage aux Chenes into the Illinois, was never in America and had no direct knowledge of its geography.

There is no evidence that *Thos. Hutchins* (Brf. p. 44; Abst., 72), who says the Illinois River affords communication with Lake Michigan, was ever in this portion of Illinois. (Abst., 1170.) All that Hutchins presents in his book by way of detail of the Illinois country, is by reference to an account by one Kennedy who tried to ascend to the headwaters of the Illinois in a boat, in August, 1773, which he was compelled to abandon 15 miles below the mouth of the Desplaines because of shallow water. (Abst., 1525.) Any possible inference to be drawn from Hutchins's statement as to the navigability, of the Desplaines is certainly negatived by Kennedy. (Abst., 1172.)

Jean Baptiste Perrault (Brf. p. 45; Abst., 76-79) came up the Illinois in the springtime flood. He left Cahokia May 4, 1783, had one barge and one canoe, and was directed to *"pass by Chicago"* and rendezvous on Lake Michigan. The Desplaines is not mentioned in his account. (Abst., 217.) It was perfectly possible for him to "pass by Chicago" without coming up the Desplaines. He may have come up the Kankakee, or by the Calumet. Callot went by the Calumet to Chicago (Abst., 218, 1563) and La Salle, Hubbard and others took the St. Joseph route.

Hugh Heward (Brf. p. 46; Abst., 81, 83), who traversed the Desplaines *in a pirogue* in May, 1790, went down in a period of extreme high water, and that the

danger of the trip was great appears from his narrative. He speaks of a portage and long rapids. Some of his men, after passing Joliet, told him that because of the dangers they might not return with him.

Callot (1826), who speaks of boats passing from the lake into the Desplaines (Brf. p. 47; Abst., 88), relates a condition which was limited to a period of extreme high water in the spring. He also points out the possibility of gaining the lake from the Illinois River by the Calumet route, in high waters.

Imlay (Brf., Part II, p. 15; Abst., 89), who said that the Illinois was navigable *for batteau* to its source from whence was a portage only 2 miles to Chicago, was never at Chicago (Abst., 1529, 240); he named Charlevoix, Carver and Hutchins as his authority on the Illinois country, none of whom had ever traversed the Desplaines route. His statement as to the distance from the portage on the Chicago River to the lake, which he says was sixteen miles, shows his information to have been very inaccurate (Abst., 241, 1529.)

Counsel say that *Robert Dickson* (Brf., p. 48; Abst., 91) mentions the route by Chicago as one of two ways of communication between Mackinac and the Mississippi. Dickson said "the communication between Mackinac and the Mississippi is carried on by two routes, the one by Chicago, the other by the Fox and the Wisconsin Rivers, *the latter is preferred on account of the shortness of the carrying place.*" As appears elsewhere, the carrying place between Chicago and the Illinois, was frequently to a point far down that river.

The Treaty of Grenville, 1795 (Abst., 90), makes no reference to the Desplaines, but to the portage between the Chicago River and the Illinois, and down the Illinois to the Mississippi.

Counsel omit any reference to a letter of one Selby introduced by Alvord, although material immediately preceding, and following, it is dwelt upon.

Prideaux Selby, who was Secretary of the Indian Department at Detroit from 1790, for a number of years, points out that the route from Mackinac by the Illinois River, though much nearer, is to be rejected in favor of the long Fox-Wisconsin route, *because the former subsides too rapidly to be available for the carrying of troops or supplies and is, even when high, filled with rapids and shallows.* (Abst., 92.) This is an answer to the claim of counsel that the Desplaines was used for the transportation of troops, in support of which there is no evidence in the record, and throws light on Forsythe's statement next to be referred to.

Thomas Forsythe, 1814 (Brf., p. 48), indicates nothing as to use made of the Desplaines. Forsythe's table is to be interpreted in the light of knowledge from other sources of conditions governing the navigation of the Desplaines. This observation applies with equal force to his mention of the possibility of Indian attacks from above, down the Chicago-Illinois route by canoes (p. 97). He must have known, as did Marquette, St. Cosme, Charlevoix and others before him, that the water was ordinarily very low and unnavigable even for canoes, and that, as Marquette relates, a portage of 30 leagues was a very simple matter to Indians with their light canoes. (Abst., 1435, 1436.)

The letter of *Governor Cass,* in 1815 (Brf., p. 48, Abst., 97), does not mention the Desplaines River, but speaks of the route by way of Chicago and down the Illinois as one of the three great channels of communication from Canada to the Mississippi. The evidence discloses that about this time there was a well-beaten wagon road all the

way from Chicago to the Illinois, over which boats were carried in wagons (pp. 3255).

John Kinzie, who wrote Cass in 1815 (Brf., Pt. II, p. 16; Abst., 100) that at that time boats of several tons burden could pass from Lake Michigan into the Mississippi River, was making a plea for the re-establishment of conditions that would restore his trading business lost to him by the Chicago Massacre. (Abst., 1534.) He understated the difference in elevation between the two waters, and did not limit the period during which the boats might pass. (Abst., 1852.) Kinzie's tendency to overstate is illustrated by his remark that he had lived in Chicago 20 years when he had only lived there eight years. (Abst., 470.)

Wm. Darby (Brf., p. 49; Abst., 105-108), who mentions the Chicago and Illinois Rivers as affording the most eligible natural connection between the north and south waters of the United States, and prints an editorial from the St. Louis *Inquirer,* as "deciding the long-contested problem of a natural water communication between the waters of the St. Lawrence and Mississippi Rivers," was never any nearer the Desplaines than Detroit and southern Illinois. (Abst., 279.) The editorial, as we shall point out, is extremely inaccurate in its description of the rivers and is recognized by Thwaites (Abst., 395) and McLaughlin (Abst., 352) as being "somewhat exaggerated." Darby's statements are obviously founded upon it, and are equally inaccurate. The editorial was written by Thomas H. Benton, Senator from Missouri, as part of his propaganda for the building of canals by the Federal Government. (Abst., 1175-1177.) The statement in the editorial to which counsel refer to the effect that "in high water boats of 10 or a dozen tons pass without obstruction," and that "Hundreds, nay thousands, of boats have been seen at St. Louis had made a similar passage," cannot have been true. There was no

population, or trade, in Illinois, or Chicago, to demand a commerce such as that which the alleged "hundreds, nay thousands of boats" carried. (Abst., 1178-1183.) Two years after the date of this editorial there were but five houses in Chicago (Abst., 1108-1109), and there was but one house on the Illinois and Desplaines between the Mississippi and Chicago. (Abst., 1111-1112.) The nature and amount of commerce on the Lakes up to 1840 was not such as to make possible such a commerce between St. Louis and Chicago. (Abst., 1183-1186.) A portion of Hubbard's furs were shipped from Chicago for the first time in a small schooner in 1823, which had brought supplies for the garrison. The course of trade of the French of Cahokia and vicinity was not by way of the lakes and the Illinois (Abst., 1341-1343), but by New Orleans. (Abst., 1419.) From 1763 to 1790 trade between Canada and Illinois country and St. Louis was by the Wabash route. Kinzie used bases from 1804 to 1812, and from 1812 to the time of the editorial there was little trade, and few traders, because of the war of 1812. In the latter year the garrison at Chicago was massacred and the settlement destroyed.

Darby concludes a very inaccurate description of the headwaters of the Chicago and the Desplaines (Abst., 106) with the remark that *"the Plein* (Desplaines) *also flows with a very slight current* and the two streams *present almost a strait* between the Mississippi River and Lake Michigan. (Abst., 106.)

The editorial includes this:

> *"They* (the Chicago and Desplaines) *have neither falls nor shoals; they have not the character of streams but of canals; the water hardly moves in their deep and narrow channels."*

On the contrary, the Desplaines has a fall greater than the Sault Ste. Marie Rapids (p. 2216).

La Salle described the river as having a greater current than the Rhone. The Government's chief engineering expert, Mr. Cooley, in an official report to the Governor of the State, said:

> "From the end of the 12-mile level to Lake Joliet was seventeen miles—a mere surface stream over bedrock—with a steep declivity over the lower half of the distance descending to a level of 76.5 feet below Lake Michigan. * * * The Desplaines River practically goes dry above Joliet."

Government's counsel refers to the report of Graham & Phillips and to the fact that Phillips was Judge of the Supreme Court of Illinois. That report discusses the feasibility of opening communication between the Chicago and the Desplaines by means of a canal. It contains this language: "The Plein, during half the year, does not contain water enough to float a boat and so could not become useful as a national highway" (Abst., 115); and further that at one season of the year there is "a portage of fifty miles, from the mouth of the Plein to the lake over which there is a well-beaten wagon road and boats and their loads are by oxen and vehicles kept for that purpose by the French settlers at Chicago." (Abst., 116.)

The Government relies largely on Gurdon S. Hubbard's "Sketch of Life," referred to in our original brief (pp. 114-117). The use made of it in the Government's brief makes some further comment necessary. This work was introduced by Alvord. Until cross-examination he made no reference to the portion in which Hubbard gave his reasons for abandoning the attempt to use the Desplaines when he became Superintendent of the Fur Company, and none to his use of the very much longer

route by the St. Joseph and the Kankakee to the Illinois, to avoid "the delay and hardships of the old route through Mud Lake and the Desplaines." (223.)

In the Government's brief it is said "Hubbard's account shows that in the fall in the dry weather the boats were unloaded and pushed *through the ditch on short rollers.*" (Br., p. 54.) The ditch here referred to is between the Chicago River and the Desplaines. The narrative immediately following discloses that Hubbard and his party had the same difficulties to contend with all the way down the Desplaines to the Illinois.

Hubbard said (Abstract 120):

> "It took us three consecutive days of such toil to pass all our boats through this miserable lake; when we finally camped on the banks of the river (the Desplaines) our goods had all crossed the portage and we were once more ready to proceed. Our boats being again loaded, we resumed our voyage down the Desplaines until we reached Isle La Cache, where low water compelled us to again unload our goods in order to pass our boats over the shoal that here presented itself; and again we encamped after a hard day's labor."

Isle La Cache is but a few miles down the river, and is above Lockport. From that point Hubbard's party were compelled to carry their goods on their backs nearly all the way to the Illinois River. He says, page 121:

> "Our progress from this point was very slow indeed, and most of the distance to the Illinois River our goods were carried on our backs, while our lightened boats were pulled over the shallow places, often being compelled to place poles under them, and on these drag them over the rocks and shoals. In this manner almost three weeks were occupied in reaching the mouth of the Fox River and two days more brought us to the foot of Starved Rock."

Fox River is far down the Illinois, and the passage therefore shows that the upper Illinois and the Desplaines would not accommodate the passage of boats.

Hubbard's narrative all through throws light upon the conclusion of the Government experts "that traders found a very easy passageway by means of these rivers in the early spring." There is no record of any trader passing up this river in a boat carrying furs or other produce, except in Hubbard's narrative. He says, concerning his return trip, page 122:

> "The first night we halted at our old camp ground at the foot of Starved Rock. From this point, until we reached Cache Island, our progress was very slow, averaging but from six to ten miles per day. The river was high, the current swift, and the rapids strong, and as the boats were heavily laden and a cold storm prevailed, we were glad to camp early and afford the men a much needed rest. Early in the morning we left Cache Island, and as the wind was strong from the southwest, we hoisted our square sails for the first time, and rapidly passed up the Des Plaines River, through Mud Lake, to South Branch, *regardless of the course of the channel,* and soon reached Chicago."

It is to be remembered that Cache Island is above Lockport, that the rapids are below that point and continue at intervals all the way to the Illinois River. The easy passage was only from Cache Island to Chicago, which was nearby, and was over prairies flooded with water; a condition which existed for very short periods in the spring. The channel of the river was disregarded.

That the passage was not easy in the spring is shown by the accounts of La Source and Montigny, who having traveled up the Illinois by water as far as possible, went by land 90 miles to Chicago. (Abstract 1565.)

In 1675 a surgeon attempted to pull his boat up river in the spring, but he gave up the attempt. We have referred to the unsuccessful attempt of Joutel's party to do the same thing.

The next work referred to by counsel in connection with Alvord's testimony is the narrative of *Schoolcraft*. Alvord omitted a portion of that narrative in which Schoolcraft not only showed the Desplaines to be unnavigable, but also committed himself to the opinion that no short canal would effect communication between the Chicago River and the Illinois.

Schoolcraft came up the Illinois in a canoe in August, 1821, for the purpose, among other things, of examining the situation with reference to the proposed canal. He was forced to abandon the canoe at about Starved Rock. There was often less than four inches of water. Therefore, he and his party came by horses from the Illinois to Chicago. He referred to the error of those who supposed a canal of only eight or ten miles would be necessary to perfect navigation between Lake Michigan and the Illinois. (Abst., 1192-1193.)

Upon cross-examination, Alvord testified that when he prepared his evidence on the direct, he knew of this portion of the narrative, but did not use it. Likewise, Alvord did not refer to a footnote in Schoolcraft's Travels, being an extract from an account by *Thomas Tousey* of his visit to the Desplaines in 1822, which appears at page 113 of our original brief. Tousey said that he came imbued with impressions favorable to the canal, but concluded that the project of the canal would be of greater difficulty than he, or the public, generally had supposed, *the ignorant supposition arising from the study of books and maps instead of viewing the country as he did.* (Abst., 1189-

1190.) It is a fair presumption that Tousey's erroneous impressions must have been gained from some of the misleading compilations on which the Government and its experts rely, most of whose authors never saw the Desplaines. These erroneous statements can nearly all be traced back to Logan's report, and to the work of Hutchins, to whose errors we have referred.

Counsel next refer to the journey of *Ebenezer Childs* in 1821, from St. Louis to Chicago. He came in a light canoe with two men and no cargo. It was in the time of the spring floods, the whole country was inundated, and he traversed the prairie in his canoe from the Desplaines to Chicago. In discussing this narrative Prof. Thwaites expressed the opinion that if, for a couple of weeks in the spring, the country was inundated between the Desplaines and Chicago Rivers, so that boats passed over it, that would establish it as a navigable route for travel. (Abst., 884-885.) This is a side light on the conception which the Government's historical experts had of the meaning of the term "navigable stream," and upon the value of the conclusions they have drawn from the narratives upon which those conclusions were founded.

In the Government's brief (p. 56) appears the following:

> "Ordinance of 1878 fixed the northern boundary of the Illinois at the line west from the Southern boundary of Lake Michigan. Pope, the Illinois delegate, got this changed so as to have a port on the Lake which would tend to bring in the northern settlers by the northern waterway. This obviously refers to the Chicago Desplaines."

This is an excellent illustration of the tenuous inferences which the Government is compelled to draw to build

up its case. Obviously the language means, and the context shows, that the purpose was that northern settlers should come in by the Lakes, rather than to have the current of immigration from the South by the Ohio. (Abst., 129.)

The next work referred to by counsel is *Ogden's Letters.* (Brief p. 56. Abst., 128.) Contrary to the statement of Alvord and of the Government's brief, Ogden was probably never in Illinois. Thwaites had edited these letters with a preface giving authority to them. It was shown by Prof. Quaife that they were plagiarisms. The fact that Ogden plagiarized is proved, and the sources from which he took his material, are placed in parallel columns, on pages 1547 to 1562 of the abstract.

Beck's Gazetteer (Brf. 56, Abst., 131-133) is based principally upon Graham & Phillips' report (Abst., 132) which, as appears above, stated that the Desplaines could never become a national highway. The Gazetteer also shows, in a passage which counsel does not refer to, that in the writer's opinion a canal would be necessary, and that the Desplaines could not be looked to to supply the water for it, because of the great floods in the spring, and its dry condition at other seasons. (Abst., 133.)

Keating's "Narrative," etc. (Brf. p. 57, Abst., 135, 136), relating that he was informed that "this route was frequently traveled," and that Hopson told him that he had traveled it with ease in a boat loaded with lead and flour, proves nothing as to the use of the Desplaines River. It does not reflect personal experience, or his observation, of the Desplaines because he never passed beyond the Mud Lake region. It is to be observed that Keating exchanged his boat for a pirogue (a hollowed out tree trunk) which drew less water, and that he says

"there was scarcely water enough to permit our pirogue to pass." (Abst., 135-136.)

Fonda's Reminiscences (Brf. p. 58, Abst., 137, 138) merely shows that he passed up the Desplaines in a canoe. If so, we must fairly infer from other sources, either that it was in springtime or that rains had raised the water higher than usual; or else that they had to portage much of the Desplaines. There being no statement as to the latter, one of the two former alternatives is probably the true one. (Abst., 1701.)

"Drown's Peoria" (Brf. p. 57, Abst., 139) which contains the statement that John Hamlin exported produce from Peoria to Chicago in 1825, is an almanac, and directory, and advertising medium, of a flimsy character. It was written a quarter of a century after the alleged fact. Its statement that John Hamlin carried produce from Peoria up the Desplaines to Chicago part way in keel boats and part in Durham boats, building a storehouse at the mouth of the Kankakee, is highly improbable, because there is no other instance in the whole record, of the produce of the country being carried up the upper Illinois or Desplaines by boats, also because the physical conditions made it impossible for boats of that character to pass up or down the river, also because persons who settled in the neighborhood within a few years thereafter never heard of such an event or of any storehouse, said to have been built at the mouth of the Kankakee, and lastly because there was no settlement at Chicago at that time which could have justified such an undertaking. There were but nine people in Peoria in 1825, and but three or four families in Chicago. (Abst., 1820-1823, 1930-1932.) The garrison was removed in 1823. (Abst., 1471.) At the period in question there was produced at Chicago "a superabundance of all the luxuries of farm, cornfield and

dairy." The difficulty was how to dispose of the amount produced. (Abst., 1472.) Commerce on the lake and through this Illinois country was about as disclosed in the authorities referred to elsewhere herein, which have been cited to refute the editorial about "hundreds, nay thousands," of boats at St. Louis which had come there *via* the Desplaines.

The *Report of the Select Committee,* in 1825 (Brf. p. 58, Abst., 140) expressed the opinion that it is feasible to connect the Illinois and Lake Michigan by canal, basing that opinion upon Lond and Graham & Phillips. It was the product of no independent investigation, and has no added weight.

Morse's "American Gazetteer" (Brf. p. 58, Abst., 142) is a mere compilation treating of the geography of the entire world. It was prepared by the editor's assistant, and the pertinent portion is based on Hutchins (Abst., 1169, 1632-33), and it is therefore subject to the same criticisms, as far as it relates to the Desplaines, as are shown with respect to Hutchins.

The Navigator, 1824 (Brf. p. 58, Abst., 147) is also a mere compilation. It presents secondhand information of the region in question. The compiler apparently followed Imlay, for the same error which appears in the latter, and which is above pointed out, is in The Navigator in substantially the same language.

Timothy Flint, 1832 (Brf. p. 58, Abst., 150) claimed no other merit than being "a laborious and faithful compiler." There is no proof that he was ever on the Illinois, or nearer Chicago than Jeffersonville, Ind. He simply repeats the common misapprehension about the ease of communication between the lake and the Illinois. Tousey, as we have shown, points out the unreliability of such publications, and of the erroneous impression which they

had given him as to the ease of communication between Lake Michigan and the Illinois. (Abst., 1835-1836, 1458-1459, 1832-33.)

Hoffman (Brf. p. 60, Abst., 158), who makes the error of stating that the Desplaines rises 11 miles west of Chicago, bases his detailed account of the portage and the passage thereof, upon Keating's account, and is entitled to no more weight than Keating, because though Hoffman visited Chicago it was in extremely cold winter, and he could not have seen the thing of which he writes. (Abst., 1462-1465, 1933.)

Woodruff's History of Will County, 1878 (Brf. p. 60, Abst., 159), wherein it speaks of small steamers plying regularly in 1878 between points on the Kankakee and Chicago, carrying to that city grain and bringing back lumber, salt, etc., makes a statement which is wholly untrue. (Abst., 1578-1579.) During the taking of the testimony, counsel for the Government admitted that these steamers made use of the aqueduct and the Illinois and Michigan Canal, and did not enter the Desplaines at all except where the canal and the river were coincident, constituting the upper and lower canal basins at Joliet. (Abst., 1579.)

Woodruff himself, in his pamphlet containing a series of lectures delivered in 1874, on the history of Joliet and Will County pointed out that the opening of the Illinois and Michigan Canal meant a new era in the history of Joliet and vicinity; that theretofore goods had been transported from Chicago chiefly by ox teams, drawing wagons; that a stage route between Chicago and Ottawa by way of Plainfield was established in 1834; that in 1838 or '39 the route was changed so as to go from Ottawa to Chicago directly up the west side of the river.

Alvord, by whom Woodruff's history was introduced, on cross-examination admitted that "from the evidence that has been introduced I should say that it was not proved historically that it was the usual custom for the farmers living along the Desplaines River to send their products to Chicago by boats." He ventured the thought that there "seemed to be some indication" that such use of the river was occasionally made in the spring or early summer, but being pressed for any such "indication" finally admitted that, except the excerpt from Woodruff's History, he knew of no statement showing such use. He also admitted that there was no instance of any of the farmers who came into this country, getting in by way of the Desplaines River. (Abst., 255, 256.)

Winsor's Narrative and Critical History (Brf. p. 61, Abst., 165) does not "refer to the Chicago-Desplaines route" but to the route "by the Chicago River at the southwest of Lake Michigan to the Illinois, thence to the Mississippi." The Desplaines is not mentioned, and as has been abundantly shown, the portage from the Chicago River frequently extended the whole distance to the Illinois. The context shows also that Winsor was referring to canoe navigation.

Lieut. Col. James H. Wilson's report of 1867 to which counsel refer (Brf. Pt. II, p. 25, Abst., 160), shows the non-navigable character of the stream as follows:

> "The river itself, except in floods, is very shallow, being often reduced in dry seasons to a mere brook, discharging less than 1,000 cubic feet of water per minute. (Abst., 2844.)
>
> This canal, from a point 8 miles southwest of Chicago, follows the valley of the Desplaines, a tributary of the Illinois, until it forms a junction with the Kankakee River, some 50 miles southwest of Chi-

cago, below which the river is known on the map as the Illinois. The latter name would have been more appropriate for the Kankakee above that point, as it is the main river and the Desplaines, in low water, contributes a comparatively insignificant quantity to its volume.

The Kankakee supplies water sufficient to make a good slack water navigation; the Desplaines of itself does not, and although the direction of the former was such that it was not probable that a favorable connection with Lake Michigan could be made through its channel, yet it was deemed advisable to determine that fact beyond cavil." (Abst., 2843, 2844.)

"*Illinois in 1837,*" referred to by counsel (Brf. p. 61, Abst., 162), is a compilation by an unknown author. Alvord did not allude to the following statement in it, "Peru is situated on the Illinois River *at the head of river navigation.*" (Abst., 1527.)

Hinsdale's "Old Northwest" (Brf. Pt. II, p. 27, Abst., 167, 168) merely speaks of carrying place between the Chicago River and the Illinois.

We ask the court's attention to the analysis by Professor Quaife of the conclusions of the experts for the Government, beginning at page 641 of the record. The brief for the United States does not do justice, either to the testimony of Quaife or Lee, but it is manifestly impossible to follow out in detail all the points in which this injustice appears. The brief represents Quaife as refusing to answer "yes" or "no," as to whether the Desplaines was used by fur traders in the 17th Century, and as refusing to draw any conclusions as to whether or not the Desplaines was ever used, except in the fifteen instances pointed out in the record. (Brf. 115.) A reading of Quaife's testimony will show that this is not a fair state-

ment. He did refuse to answer "yes" or "no," because he said such an answer would be misleading. And, he went on to point out what he meant by that. But he stated "that it was so used was a warrantable, a possible, and a probable deduction." (p. 1656.)

II

THE ACT OF THE ILLINOIS LEGISLATURE UNDER WHICH THE SANITARY DISTRICT CANAL WAS BUILT, WAS FRAMED EXPRESSLY TO PROTECT PRIVATE WATER POWER RIGHTS IN THE DESPLAINES RIVER. THE CHARGE THAT MUNROE AND HIS ASSOCIATES SOUGHT TO FORESTALL THE SANITARY DISTRICT IN DEVELOPING WATER POWER IS WITHOUT JUSTIFICATION.

In the Government's brief an attempt is made to create the impression that Munroe and his associates acquired the land for the building of the dam with a view to forestalling the development of water power by the Sanitary District, and to take an undue and unwarranted advantage of the expenditure of some $63,000,000 by the public in constructing the Sanitary District Canal. They refer to the fact that Sections 5 and 6 of the Act of the Illinois Assembly, May 14, 1903, empowered the Sanitary District to develop, use and sell the water power created above the upper basin of the Illinois Michigan Canal, as showing that this was the policy of the State; but the Government does not tell this Court that the Act in question was so drawn as to expressly protect the private water power rights below the mouth of the Sanitary District Canal, and that it expressly prohibited the trustees from exercising any power over the waters drawn from Lake Michigan through the Canal after those waters left its southern terminus. The upper basin of the Illinois and Michigan Canal where the Act empowered the trustees to develop water

power was at and above Joliet. The power there belonged to the Sanitary District. The dam which appellants propose to construct and was constructing was some 14 miles below that point. Section 7 of the Act referred to provided:

> "In no case shall said Board (Board of Trustees of the Sanitary District) have any power to control water after it passes beyond its own channel, water ways, races or structures into a river or natural water way or channel, or water power or dock situated on such river or natural water way or channel."

The water power in question here being far below the point where the water passed from the channel of the Sanitary District, clearly it was not only not contemplated that the Sanitary District should have any power of control over it, but such power was expressly denied. The 23d Section of the Act provided:

> "This Act shall not be construed to authorize the injury or destruction of water power rights."

One of the water power rights thus protected was that which appellant purchased. At the very point where appellant sought to erect its dam a water power existed and a dam was erected in 1833. Counsel say in substance that there was no water power along the Desplaines, except at dam No. 1 at Joliet, which had any value in a modern sense until the addition of the waters of Lake Michigan. Several water power dams at points below the junction of the Sanitary District with the Desplaines existed from the earliest days of settlement. A summary of them is given at page 2084 of the Abstract. It was, of course, known to the Legislature when it passed the Act creating the Sanitary District, that those powers would be greatly increased and rendered more valuable by the addition of the waters

of Lake Michigan. It is a well-known fact and appears from the Record that the preservations of these very water powers was debated and thoroughly considered by the Legislature, and that sections 7 and 23 of the Act were incorporated for the express purpose of protecting them (Abstract, pp. 2020-2023). If, as counsel claim, there was no natural water power of any value in the modern sense along the Desplaines, except at Dam No. 1, the Legislature must have intended that the existing water power which would become valuable in the modern sense should be preserved and protected.

Counsel say that Munroe obtained from the State whatever rights it might have had in connection with the water power at Dresden Heights through what they characterize "frugal arrangements" with the Trustees of the Illinois and Michigan Canal. To meet what is insinuated by this statement it is only necessary to refer to the decision of the Supreme Court of Illinois in *State vs. Economy Light & Power Company,* 241 Illinois 20. It is there made clear that the State had no rights in that connection, and its ownership was only of the canal and its tow banks and of a very few acres of worthless land it had never been able to sell, and which Mr. Munroe bought at the price at which it had been carried for years on the books of the Trustees. The contracts with the Trustees of the Illinois and Michigan Canal were declared valid by that opinion of the Supreme Court of Illinois.

III

THE STATEMENTS IN THE GOVERNMENT'S BRIEF AS TO THE CIRCUMSTANCES CONNECTED WITH THE SUBMITTING OF PLANS TO THE SECRETARY OF WAR ARE IN DIRECT CONFLICT WITH THE RECORD

Counsel for the Government referring to that subject

say they feel constrained to "lay the whole matter before the Court" (Brief, 24). That which they have laid before the Court bears no resemblance to the facts. They say, and reiterate, that the officials of the United States expressed no opinion as to the navigability of the Desplaines, but that Mr. Munroe insisted at every step that it was not a navigable river (Brief, 168). The fact is that Colonel Bixby, the local engineer in Chicago, and General Mackenzie, the Chief Engineer, assured the Assistant Secretary and the Secretary of War that the stream was not navigable, and it was because of the statements so made by General Mackenzie to Secretary Taft that the latter gave his opinion that the Government had no power to interfere with the construction of the dam in the river. Counsel say (p. 19):

> "Colonel Bixby, the local engineer, in his letter dated March 27, 1906, does not attempt to pass upon the question of navigability and deals with the question upon the representation of the water power company that it is not navigable."

Both statements are contrary to the fact. No representation of the Water Power Company, or of any predecessor in title, that the stream was not navigable appears in the Record. But Colonel Bixby's letter expressly says:

> "The Desplaines River, so far as now known to this office, has never been considered a navigable stream of the United States. It is therefore apparently as yet subject to such jurisdiction as applies to all other unnavigable streams and not subject to the provisions of Sections 9-13 of the Act of March 3, 1899, or to other similar U. S. legislation." (Abstract, 2872.)

It is hardly necessary to comment upon the claim gravely made in the Government's brief (p. 168) that

Colonel Bixby acted upon the statement of Munroe that the Desplaines was not navigable, when it is remembered that Bixby was the Government engineer in charge of the District, and that his office was at Chicago within a few miles of the Desplaines River.

Counsel referring to the hearing before Secretary of War Taft, when the Trustees of the Sanitary District sought to persuade him to prevent the further construction of the dam, say:

> "After reading the record on this subject counsel's contention that the War Department assured appellant's predecessors that the stream was non-navigable, has some elements of humor." (P. 170.)

It is apparent that counsel themselves have not "read the record on this subject." They say the account of this proceeding is very meager and begins on page 1935 of the Abstract. There is a meager reference to it at the place mentioned, but counsel have overlooked the full report at page 3219 to 3228, and this although we called attention to it in our brief. The record as there presented shows that it was General Mackenzie, Chief of Engineers, who advised the Secretary of War that the stream was not navigable. Counsel state in their brief, page 22, that:

> "The Secretary and the Engineer did not inform appellant that the stream was not navigable but appellant informed them in regard to the matter."

Counsel would have this Court believe that the Chief Engineer of the Army, within whose jurisdiction came the subject of the navigability of rivers, sat back and permitted Mr. Snapp to deceive the Secretary of War, and that thereby the Secretary was led to say that the stream was not navigable. They would have it believe that when

the Secretary asked the engineer as to the fact Mr. Snapp took the answer out of his mouth. At page 3223 of the Abstract it appears that Secretary Taft asked this question: "As a matter of fact, it is not now navigable?" And General Mackenzie answered: "It is not now navigable." General Mackenzie further said in reply to the Secretary that the Department was not seeking to exercise any authority over an existing navigable stream, and that if Munroe's associates went ahead the Government could not go into court and could not by an order of the Department prevent them from doing anything. General Mackenzie added that "possibly we would call the attention of the Department of Justice to the matter simply to have them consider it as a legal proposition." Again, Secretary Taft asked General Mackenzie: "Yes, but the Desplaines is not a navigable stream, is it?" And the General replied: "It is not today, sir." We are unable to understand how counsel in insisting that it was Snapp and Munroe and not the engineers who asserted non-navigability of the stream, could have overlooked this part of the record and our references to it at pages 88 to 89 in our original brief.

In the Government's brief in quoting excerpts from Mr. Taft's opinion asterisks are used representing certain omissions from the text. Those omissions are statements by the Secretary which show that the stream was held by the Department not to be navigable. Thus, on page 21 of the brief, appears the following:

> "Mr. Taft then says the application (of the Sanitary District Trustees in opposition to the building of the dam)—'and it is rather informal than otherwise,—is for this Department to take no official action which may interfere with the State control of water power which may be developed in the Desplaines River,'" etc.

Then follow asterisks in the brief. In the record the following language follows:

> "The truth is that the Desplaines River, ***not being a navigable stream, no permit was necessary to put any obstruction in it which the War Department could prevent.*** But even if it had been a navigable stream, and even if the application had been made, and properly made to this department to say whether this would interfere with navigation, if the department concluded that it would not interfere with navigation, it is not within the power of the department to withhold its expressing such an opinion and granting such a permit so far as the United States is concerned, for the purpose of aiding the State in controlling its water power."

And again on page 22 of the Government's brief where asterisks are used, Secretary Taft asserted:

"That the Government had no power to interfere at all" and that statement was based upon the fact that the stream was not navigable.

Government's counsel tell the Court that having obtained title to the property Munroe knew that "only one obstacle stood in the way of his success; that was the navigability of the Desplaines River;" and further that he, Mr. Munroe, being a lawyer, knew that no investigation of the legal status of the matter could be entered upon without having it instantly apparent that the Desplaines was in law a navigable stream, subject to the jurisdiction of Congress, and that under such circumstances he approached the local Government engineer, and through him the Secretary of War practically for the purpose of trapping the Government. They say that at the very "threshold of this investigation lay the *Montel'o* case, 20 Wallace 430," in which the control of Congress over public waters was discussed, navigability defined, and the Chicago-Desplaines-

Illinois route was stated to be one of the three great avenues from the St. Lawrence to the Mississippi which were declared to be within the protective terms of the Ordinance of 1787." In passing it may be observed that the Chicago-Desplaines-Illinois route is not mentioned in the Montello case. The court in referring to Smith's History of Wisconsin states that he says:

> "At this time (1718) the three great avenues from St. Lawrence to the Mississippi were one by way of the Fox and Wisconsin Rivers, one by way of Chicago, and one by way of the Miami of the lake."

We have shown that the Government reports from the earliest down to the latest have stated in substance that the Desplaines was not navigable and could not become the part of a great national highway. But if it were true, as counsel say, that investigation of the legal status of the matter would have made it instantly apparent that the Desplaines was in law a navigable stream, it is unthinkable that Munroe and his associates, so believing, would have invested a huge sum of money in their enterprise without having asked a permit from the Secretary of War. They could have asked it with almost absolute assurance that it would have been granted, and they would then have had clear legal title to maintain their dam, and a solid basis for the $2,000,000 of bonds which they floated, and for their further investment. We say it was practically certain that such permission would have been granted, because there was no reason within the meaning and spirit of law why it should not have been granted. As we have seen, the Secretary of War, in his opinion, definitely stated that if it had been a navigable stream and the application had been made to the Department and the Department had concluded it would not interfere with navigation,

it was not within the power of the Department to withhold its expressing such an opinion and granting such a permit. This language leaves no doubt that the final authority on the matter of granting a permit was of the opinion that he could not lawfully have denied it.

IV

It is not the fact as stated in the Government's brief (page 20) that Assistant Secretary Oliver declined any request of Mr. Munroe's.

Assistant Secretary Oliver refused nothing but took precisely the action which Mr. Munroe asked for and which Colonel Bixby recommended. Mr. Munroe did not ask for a permit for the very obvious reason that the Desplaines was not navigable. What he desired in the submission of the plans was clearly stated in the letter dated March 27, 1906, from Colonel Bixby to General Mackenzie, in which Bixby said:

> "that Munroe and his associates desired to secure from the War Department some opinion informal or otherwise, so far as it can properly be given, that will allow them to assure all inquirers that the War Department so understands the situation and is making no objection to the prompt prosecution of such work as is necessary to a business enterprise of its magnitude and importance."

That opinion the War Department gave (Abst., 2875-2877, original brief pages 87 and 88). In the Government's brief it is said that Assistant Secretary Oliver referred to the conditions which Mr. Munroe and his associates were willing to comply with. He referred to conditions not emanating from Mr. Munroe and his associates, but recommended by Colonel Bixby, and adopted by Assis-

tant Secretary Oliver, and restated in his letter of June 7, 1906, to Mr. Munroe (p. 2877).

Both from this correspondence and the statements of Gen. Mackenzie to Secretary Taft (Abst., 3223), it is clear that Mr. Munroe obtained from the Department exactly what he asked for.

V

The opinion as to the navigability of the Desplaines expressed in the letter of the Assistant Secretary of War to Attorney General Stead, is without weight because it has no reference to navigability as contemplated by the act of March 3, 1899.

Counsel for the Government refer to the letter of Assistant Secretary of War Oliver to Attorney General Stead dated October 28, 1907, in which the Assistant Secretary stated that the Desplaines and Illinois Rivers were considered by the War Department to be navigable streams. This letter was written a few days before the State of Illinois brought its suit to enjoin the present appellant, and nineteen months after the correspondence between Colonel Bixby, General McKenzie and Assistant Secretary Oliver, in which the river was stated to be unnavigable, and in which it was expressly declared that the work proposed to be done by Mr. Munroe would be in general harmony with the improvement recommended by the Board of Engineers under the Act of 1902. If Secretary Oliver meant by his letter to the Attorney General that the Desplaines was navigable for commerce, his statement was directly in conflict with the reports of the engineers of his own department.

The report of the Barlow board had stated that "the upper Illinois and Desplaines Rivers are at present non-

navigable." (Abst., 2855.) The Benyaurd report of 1883 and 1884, had said that the only feasible plan to render the Illinois and Desplaines Rivers navigable between Joliet and La Salle was to slack water the entire distance. (Abst., 655.) The report of General Wilson in 1867 had said that "the river itself, except in floods, is very shallow, being reduced in dry seasons to a mere brook, discharging less than 1,000 cubic feet of water per minute." (Abst., 161.) Further, if Assistant Secretary Oliver meant by the letter in question that the Desplaines was navigable for commerce, his statement was in direct conflict with the testimony of the chief of engineers, General McKenzie, in this case, who said: "From the reports which we have I should judge that the river (Desplaines) is not capable today of conducting a profitable commerce in the way that commerce is usually conducted now." (Abst., 2115.) And further he said: "We consider it navigable in law, we do not consider it navigable in fact." (Abst., 2122.)

The explanation of the difference between the statements contained in the letters of 1906, and in that to Attorney General Stead, may be found in the testimony of General McKenzie. It was his office that advised Assistant Secretary Oliver what answer to make, and he gave his interpretation of navigability in these words: "When we speak of navigability I can only say that a river which will float a log is to us a navigable river, and, undoubtedly, the Desplaines River is capable of such navigation." (Abst., 2115.)

The Act of March 3, 1899, was certainly not intended to apply to "such navigation" and the Bixby-Oliver-Munroe correspondence was dealing with navigation of the kind contemplated by that Act. General McKenzie's recommendation to the Secretary of War as to the proper answer to make to the question of Attorney General Stead, and the weight to be given to the opinion expressed

therein, receives further illumination from the following excerpts from General McKenzie's testimony (Abst., 2121):

> "Q. I would like to get this thing clear, General, so that I can understand it thoroughly. I gather that your opinion and position in the matter is this; that as a legal question, whether the river is navigable in law, or whether the United States has any right to regulate it, is a question that you cannot pass upon, and not intending to express any opinion except that the United States and your department consider all rivers navigable until somebody proves them otherwise?"

This question was objected to, and counsel then asked:

> "Do I state your position fairly, General?
> A. Essentially, yes. We do take that view on the ground that there is no authority outside of Congress and the court that can declare a river navigable."

This further question was then asked:

> "So, on the other hand, you do not mean to say that when your department states this is a navigable river, it does not say that useful commerce can be carried on that river without improvement?
> A. We do not pretend to answer that question."

VI

As to the claim of the Government that the Illinois Legislature has not given consent to the building of the dam.

It is claimed that the record in this case shows, not only absence of authority on the part of the Legislature, but an act approved December 6, 1907, specifically declaring the Desplaines and Illinois Rivers to be navigable streams,

and making it unlawful to construct any obstruction to their navigability and providing for the removal of obstructions then existing. The Act of Congress in question applies only to navigable rivers. The Supreme Court of Illinois in the *State vs. Economy Light & Power Company, supra,* expressly finds that the Desplaines is not a navigable river. It was so found in *Druley vs. Adams,* 102 Ill. 177. Therefore, it follows that no authority was necessary from the Legislature of that State for the construction of this dam. The Act of the Illinois Legislature of 1907 was expressly aimed at appellant in this case. The Supreme Court of Illinois has held that that act was of no validity as against appellant, because the Legislature cannot by its *fiat* make a stream navigable which was not in fact so. The cases which hold that such statutes are ineffectual are numerous.

VII

AS TO THE GOVERNMENT'S CLAIM THAT EVEN IF THE DESPLAINES HAD NOT BEEN NAVIGABLE IN A STATE OF NATURE, THE NAVIGABILITY RESULTING FROM THE ADDITION OF THE WATERS OF LAKE MICHIGAN WOULD HAVE BROUGHT IT DIRECTLY WITHIN THE CONTROL OF CONGRESS AND THE TERMS OF THE ACT OF MARCH 3, 1899, WITHOUT REFERENCE TO THE EARLY ACTS.

This contention appears on page 164 of the Government's brief. It is directly contrary to numerous authorities cited by us in our original brief at page 102, *et seq.* Counsel rely upon cases having to do with the admiralty jurisdiction of the United States over canals opened by States to public use for purposes of commerce, and while in fact used as highways of commerce. We have distinguished these cases at pages 78 to 80 of our

original brief. Counsel for the Government say that *U. S. vs. Cress*, 243 U. S. 316, supports rather than denies their contention. In that case appears the following language, page 325:

> "It follows from what we have said that the servitude of privately owned lands forming the banks and bed of a stream to interests of navigation is a natural servitude, confined to such streams as in their ordinary and natural condition are navigable in fact and confined to the natural condition of the stream. And, assuming that riparian owners upon non-navigable river tributaries of navigable streams are subject to such inconveniences as may arise from the exercise of the common right of navigation, this in like manner must be limited to the natural right."

But counsel contend that where the courts have used the words "in its natural condition" or "ordinary condition," it has used the words "natural" and "ordinary" to indicate the usual or periodic state of the water as distinguished from unusual floods, and not as distinguished from a volume due to artificial but permanent changes.

The opinion in the *Daniel Ball* case has been cited and interpreted many times and nowhere has it been given the meaning contended for by counsel for the Government. It was interpreted in the *Montello* 20 Wall 430. At page 435, 20 Wall, appears the following from the brief of the Attorney General:

> "Where the navigation is the principal one, and the artificial merely dependent and ancillary thereto, and the natural stream is in fact navigable within the ordinary acceptation of the word, then the river forms a part of the navigable waters of the United States, if, by means of artificial navigation, it is practically made so and interstate commerce is actually carried on."

It was, therefore, plainly urged by the Attorney General in that case that the test of navigability was the natural capacity of the stream independent of artificial improvements. The court decided in favor of that contention, saying:

> "The vital and essential point is whether the natural navigation of the river is such that it affords a channel for useful commerce. If this be so, the river is navigable in fact, although its navigation may be encompassed with difficulties by reason of natural barriers such as rapids and sandbars."

This language leaves no room for argument that the court had in mind:

> "the usual or periodic stage of the water as distinguished from unusual floods and not as distinguished from a volume due to artificial but permanent changes."

The court was specifically dealing with the "natural navigation of the river" unaided by artificial improvements, and its conclusion was as follows:

> "from what has been said, it follows that Fox River is within the rule prescribed by this court in order to determine whether a river is a navigable water of the United States. It has always been navigable in fact, and not only capable of use, but actually used as a highway for commerce, in the only mode in which commerce could be conducted, *before the navigation of the river was improved.*"

In *Thunder Bay River Booming Co. vs. Speechly,* 31 Mich., 335, Judge Cooley said:

> "The public right is measured by the capacity of the stream for valuable public use in its natural condition."

While it is clear from the evidence that the Desplaines has not at any time been, and is not now, navigable, there is, in fact, no conflict among the authorities on the proposition under discussion; and if there were no authorities and the court were to be guided only by reason, it could, we submit, come to no different conclusion. In Illinois the title to the beds of rivers, whether navigable or non-navigable, is in the riparian owner. That title is derived from the State. Whatever its nature was when thus originally acquired, such it remains until, by the exercise of the right of eminent domain and, the payment of compensation, it is taken away entirely, or in some manner qualified or burdened. He who acquires the bed of a navigable stream, from the beginning assumes the burden of an easement of navigation for the benefit of the general public; but he who purchases land which includes a stream not navigable, acquires the same unburdened title to that portion which is covered by water as to the remainder. To enter upon that portion of it is as much a trespass as to enter on any other portion. It would be difficult to devise any theory upon which the State, or the United States, could, by the addition of waters, or by dredging a channel, create a highway across lands so situated, any more than they could project a street through a city block, without compensation to the owner and without due process of law. In either case the act would be confiscation. The right of a farmer to use, and enjoy, that portion of his lands through which an unnavigable stream passes is, so far as the public is concerned, as well defined, and as unqualified, as his right to any other portion of his farm.

It is well known that, in the early settlement of the country, the selection of sites for homes and farms, as well as for saw and grist mills, was largely dependent

upon the conditions as to flowing water. Indeed, the trustees of the Illinois and Michigan Canal, in early publications, referred to the water powers upon the Desplaines River as an inducement to persons to purchase these very lands. The earliest settlers availed themselves of these water power privileges. In 1833, Beard built a dam substantially at the site of appellant's dam. At that time there were dams entirely across both channels of the river at Treat's Island, on part of what is now appellant's water power property. In 1833 the McKee dam was built at Joliet. Norman's dam was situated in an old numbered section between Lockport and Joliet. The Haven dam below Joliet was erected in the year 1839. The right to maintain it was recognized by the Supreme Court of Illinois in three different suits, and the Sanitary District was ultimately compelled to pay for it the sum of $70,000. In 1841 the Circuit Court of Will County decreed that the trustees of the Illinois and Michigan Canal should pay $16,700 for the McKee dam, and in 1845 they did so, and took a conveyance of the dam, and the right to the dam site. These early riparian owners found an unnavigable river. They erected dams across it at various places, and their right to do so was respected, and protected, by the courts. That such rights are property, and of large value, need not be argued.

Inasmuch, as, in the case at bar, counsel in their brief have distinctly asserted a right in the public to deprive the appellant of its property because of artificial additions to the volume of the stream, the language of Judge Cooley, quoted in our original brief at page 106, is particularly pertinent.

In *Pearson vs. Rolfe,* 76 Maine, 380, the court said (p. 385):

> "It is the natural condition of a stream which determines its character for public use. And it must be its navigable properties in a natural condition, unaided by artificial means or devices."

Substantially this language has been used in a number of cases, some of which the court quotes in the above decision, and so far as we are able to find there is not a single authority to the contrary. Of what weight, then is the mass of reports of engineers collected in this record, as to schemes, or plans, for *creating* a navigable channel in the Desplaines River? To the Government's case they give no aid. To appellant's they afford most substantial support, because they recognize the fact that the stream, in its natural condition was not navigable.

In *East Hoquiam Boom and Logging Company* vs. *Neeson*, 54 Pacific 1001; 20 Wash., 142 (1898), it is said:

> "It is well settled that a stream which can only be made navigable or floatable by artificial means is not a public highway."—Citing Daniel Ball, 10 Wallace, 557, and other cases.

In the Government's brief it is said that:

> "Even if the stretch of the Desplaines in question had been substantially unnavigable 'without the artificial aid of canals' the fact that it served as a connection between the obviously navigable water of Lake Michigan and the Illinois River would in itself have rendered a navigable water of the United States and within the protection of Congress."

And they cite *U. S. vs. Chandler Dunbar Co.*, 239 U. S. 25356.

The Soo St. Marie, which is referred to in that case is a great waterway obstructed by a short rapids. It connected Lake Superior with the lower lakes. The Des-

plaines in a state of nature did not connect Lake Michigan and the Illinois. When a connection was made between that lake and the Illinois, it was by digging a canal from the Chicago River to Ottawa.

We refer the court again upon this point to *Veasey vs. Moore,* 14 Howard 568, cited in our original brief page 73.

The case of *State vs. Carpenter,* 68 Wis., 165, 60 Amer. Reports, 848, is very persuasive. That was an action brought by the State to prevent the placing of an obstruction in Rock River at Janesville. In Wisconsin the provision of the Act of 1787 concerning navigable waters and carrying places was specifically adopted as Section 1, Art. 9, of the Constitution. For that reason alone it is operative in that State. *State of Wisconsin vs. Adams,* 15 L. R. A., 561. Notwithstanding that fact, however, it was held in the *Carpenter* case that even though Rock River was a navigable stream under the Ordinance of 1787, and the Constitution of the State, and putting an obstruction in it was, therefore, technically a public wrong, yet inasmuch as it had not been used for navigation for many years and was obstructed by dams and bridges, a court of equity would not enjoin a further obstruction at the suit of the Attorney General. The court said:

> "There was a time, in the early settlement of the country bordering on this river, when it was practically and in fact navigable, and actually used to a limited extent for the floating of logs, and perhaps for small boats and barges. But since that region has been denuded of its forest, and other and better means for transportation have come into use, such practical use of the river has been entirely abandoned, and its waters have been exclusively used by riparian proprietors and for hydraulic purposes, and it has been spanned by highway and railway bridges and

mill-dams in near proximity with each other throughout its entire course. We shall see that these considerations and conditions cannot be ignored in a case like the present one, where a court of equity is asked by the Attorney-General, on behalf of the public, for an injunction to restrain a single encroachment upon the waters of this river, which at most will not much increase the obstructions which have for a long time existed to its technical and legal navigability.

"The nuisance does not consist in obstructing the river, but in obstructing the use of the river as a navigable stream by the public. The defendant may have no right whatever to erect a building in it that may obstruct the navigation of Rock River, and by doing so he may be technically guilty of a public wrong. But that is not the question. Where is the immediate hurt, injury, inconvenience or peril of the public in this threatened construction, that a court of equity should be called upon to exercise this extraordinary and questionable jurisdiction to enjoin it? If completed, as threatened, the public may not for many years, and probably never, suffer any injury or inconvenience from it. The river has not been navigable in fact, or navigated or used or needed for such purpose, for many years, and probably never will be again. The wrong and injury to the public, if any, are merely technical and nominal. Courts of chancery should not be called upon to exercise this high jurisdiction in a case where it is needless and useless and a mere idle ceremony. *Cui bono? In order to have the character of navigability, this river should be navigable in fact, or navigable to some purpose useful to trade or agriculture, and must be generally or commonly useful for such purpose, if courts are called upon to interfere to protect its navigability.*"

See also, *Attorney General vs. Delaware*, etc., *Rd. Co.*, 27 N. J. Eq., 631.

VIII

AS TO THE ALLEGATIONS THAT THE SANITARY DISTRICT CANAL IS NAVIGATED.

Counsel for the Government ask the Court to take judicial notice that the Sanitary District Canal has been actually navigated for 19 years and that for years a passenger packet has navigated between Joliet and Chicago. The Court is asked to take judicial notice of what is not a fact. There has never been a passenger packet navigated between Joliet and Chicago. At the Chicago terminus of the canal there is an 8-track lift bridge. The motor power to lift it has never been installed. It was so built that such installation could be made whenever the Government took over the channel for purpose of navigation. Small boats have infrequently passed under it. This is out of the record, but so is the statement of counsel as to the passenger packets navigating between Joliet and Chicago.

IX

IT IS NOT THE FACT THAT GOVERNMENT REPORTS HAVE EVER RECOGNIZED THAT THE DESPLAINES IS NAVIGABLE. THEY HAVE SHOWN THE CONTRARY.

Counsel make references to certain reports of the Government engineers for the purpose, as they say, of showing that the actual navigation, and the navigability of the Desplaines River was recognized by the Government in an official report as early as 1819, and that the general government has had in contemplation the improvement of the river for purposes of navigation since 1867. The report of 1819, above referred to, is that of Graham and Phillipps, in which it was said:

"The Plein during half the year does not contain water enough to float a boat, and so could not become useful as a navigable highway." (Abst., p. 115.)

It was this report that pointed out that at one season of the year the portage was 50 miles, which eliminated the Desplaines altogether, and that there was a well beaten wagon road, and that boats and their loads were hauled by oxen and vehicles kept for that purpose by the French settlers at Chicago. (Abst., 116.) The report of 1867, to which counsel refer, is that of General Wilson, which stated that the Desplaines, except in floods, was very shallow, being often reduced in dry seasons to a mere brook, discharging less than one thousand cubic feet of water per minute. (Abst., 1072, 2843.) It must be admitted, therefore, that these references do not show "that the actual navigation and navigability of the Desplaines River was recognized by the Government in an official report as early as 1819," nor that the Government had ever decided to improve the river for purposes of navigation.

Counsel refer to other reports, all of which have to do with canalizing the river by means of locks and dams. For example, that of Major Benyaurd's, who says:

"That the only feasible plan to render the stream navigable is to slack-water the whole distance."

Counsel omit any reference to the Barlow report of 1900, which says:

"That the upper Illinois and Desplaines are at present non-navigable." (Abst., 2855.)

It is not true that the general government has had in contemplation the improvement of the river for purposes

of navigation since 1867. It has made surveys of routes, whether by canal or by the river, for connecting Lake Michigan with the head of navigation on the Illinois, which is at Ottawa; but at no time has it appropriated a dollar for the improvement of the Desplaines River.

X

As to the claim that the reason why there was no navigation was the existence of dams

We pointed out in our original brief that there had been no evidence of any navigation of the river "within the memory of living man." The memory of some of these witnesses went back to the early thirties and we urged that the surest test of the navigability of a river, located in a new country, where there were no railroads, was the use made of it. Counsel seek to avoid the inevitable conclusions to be deduced from the fact that no early settlers used the river, by stating that the erection of dams prevented practical navigation subsequent to 1833. The obvious answer is: that if under the conditions of early settlement, and lack of other means of travel, this stream had been navigable, no dams would have been permitted which prevented its use for the purpose of navigation.

XI

The "Appendix" to Government's brief

There is attached to the Government's brief an appendix of 30 pages, being copies of articles which have to do with waterway improvement, and changes which have come over river commerce since paddle-wheel steamers gave way to gasoline propelled boats. It is significant that though for some years there has been no dam in that part of the Desplaines River now under consideration,

no attempt has been made to use any such boats, not even gasoline launches, on that river or the upper Illinois. We submit that if those rivers had been capable of such use, the Government would have demonstrated that fact as the best practical evidence of their navigability. Such a demonstration would have been of much greater value than the theoretical computations of Cooley and other expert witnesses.

XII

Conclusion

We submit that the proper application of the Act of 1899, intended for the practical purpose of regulating commerce as it exists today, and having validity only because of the Commerce clause of the Constitution, cannot be determined by resort to legislation which is no longer in force, which was intended to control a situation which has not existed for a hundred years, and which would, as interpreted by the trial court, declare that a stream which was used to any extent in those pre-settlement days, is a navigable water of the United States, without reference to whether any commerce has ever passed over it since the earliest settlement, or ever can pass over it.

Respectfully submitted,

Frank H. Scott,
Attorney for Appellant.

ECONOMY LIGHT & POWER COMPANY *v.* UNITED STATES.

APPEAL FROM THE CIRCUIT COURT OF APPEALS FOR THE SEVENTH CIRCUIT.

No. 104. Argued December 17, 1920.—Decided April 11, 1921.

1. Artificial obstructions subject to abatement by public authority do not render non-navigable in law a stream which in its natural state would be navigable in fact. P. 118.
2. The authority of Congress to prohibit added obstructions to a navigable stream is not lost by omission to take action in previous cases. P. 118.
3. The Desplaines River in Illinois which was used from a very early day to about the year 1825 as a link in a well-known route between Lake Michigan and the Mississippi, in the transportation of furs and supplies by canoes and other light-draft boats, but has not since

been used for transportation and is not thus useful under existing conditions, *held* a navigable water of the United States and within the act of Congress forbidding unauthorized obstructions. Act of March 3, 1899, c. 425, § 9, 30 Stat. 1151. Pp. 117, 123.

4. The public interest in navigable streams of this character in Illinois and neighboring States, and the federal authority over such as are capable of serving interstate commerce, arises not from custom or implication, but from the declaration of the 4th Article of the compact in the Ordinance of July 13, 1787, for the government of the Northwest Territory, that the navigable waters leading into the Mississippi and St. Lawrence, and the carrying places between the same, shall be common highways and forever free, etc.,—a principle which was reiterated in later acts of Congress and accepted by Illinois in her constitution at the time of her admission as a State. P. 118.
5. In so far as the Ordinance of 1787 thus established public rights of highway in navigable waters capable of bearing commerce from State to State, it was no more subject to repeal by a State than any other regulation of interstate commerce enacted by Congress. P. 120.
6. The power of the States to regulate such navigable waters is plenary within their borders until Congress intervenes, but Congress has the power to assume entire control whenever it chooses, unhampered by previous acts of the States, and this supreme authority applies to States formed out of the Northwest Territory as well as to others, and may be exercised through general as well as special laws. P. 121.
7. A river may be navigable in law though it contain natural obstructions and though it be not open to navigation at all seasons or at all stages of water. P. 121.
8. A decision of a state Supreme Court holding a river not navigable in its natural condition does not bind the United States if it was not a party to the suit. P. 123.
9. A river having actual navigable capacity in its natural state and capable of carrying commerce among the States is within the power of Congress to preserve for purposes of future transportation, even though it be not at present used for such commerce and be incapable of such use according to present methods, either by reason of changed conditions or because of artificial obstructions. P. 123.
10. The provisions of § 9 of the Act of March 3, 1899, *supra*, applicable in terms to "*any* navigable river or other navigable water of the United States," cannot be limited to such waters as were at the date of the act, or as now are, actually open to use. P. 123.
11. Where there was no application under the statute, but the party

desiring to build a dam merely submitted its plans to the Secretary of War at an informal hearing and assured him that the stream was not navigable, *held* that his refusal to act, upon the ground that that condition left the stream without his jurisdiction, imported neither an approval of the project nor an inquiry concerning navigability. P. 124.

256 Fed. Rep. 792, affirmed.

THE case is stated in the opinion.

Mr. Frank H. Scott for appellant.

Mr. Clarence N. Goodwin, Special Assistant to the Attorney General, with whom *The Solicitor General* was on the brief, for the United States.

MR. JUSTICE PITNEY delivered the opinion of the court.

This was a suit brought by the United States against appellant in the District Court for the Northern District of Illinois, Eastern Division, for an injunction to restrain defendant from constructing a dam in the Desplaines River at a point in Grundy County, Illinois, without the consent of Congress or authority of the legislature of the State, and without approval of the location and plans by the Chief of Engineers and the Secretary of War of the United States. Relief was prayed upon two grounds: (1) that the river bed where the dam was being constructed was the property of the United States; (2) that the Desplaines River was a navigable waterway of the United States, and the proposed construction of a dam therein was in violation of the Act of Congress of March 3, 1899, c. 425, § 9, 30 Stat. 1121, 1151. The first ground was overruled by the District Court and disregarded by the Circuit Court of Appeals. We need not consider it further. The second ground was sustained by the District Court, and its final decree granting an injunction was

affirmed by the Circuit Court of Appeals, 256 Fed. Rep. 792. The present appeal followed.

Section 7 of Act of September 19, 1890, c. 907, 26 Stat. 426, 454, makes it unlawful to build any dam or other structure in any navigable river or other waters of the United States, so as to obstruct or impair navigation, without permission of the Secretary of War. Section 9 of the Act of March 3, 1899 (30 Stat. 1151) declares: "That it shall not be lawful to construct or commence the construction of any bridge, dam, dike, or causeway over or in any . . . navigable river, or other navigable water of the United States until the consent of Congress to the building of such structures shall have been obtained and until the plans for the same shall have been submitted to and approved by the Chief of Engineers and by the Secretary of War: *Provided*, That such structures may be built under authority of the legislature of a State across rivers and other waterways the navigable portions of which lie wholly within the limits of a single State, provided the location and plans thereof are submitted to and approved by the Chief of Engineers and by the Secretary of War before construction is commenced. . . ."

There is no contention that the consent of Congress for the building of the proposed dam has been obtained, that its construction has been authorized by the legislature of the State of Illinois, or that the location and plans have been submitted to and approved by the Chief of Engineers and the Secretary of War. The substantial defense is that the Desplaines River, at the site of the proposed dam, which is below the City of Joliet and just above the point where the Desplaines joins the Kankakee to form the Illinois River, is not navigable in fact and not within the description "navigable river, or other navigable water of the United States," as employed in the Act of 1899.

The District Court found that there was no evidence of actual navigation within the memory of living men, and that there would be no present interference with navigation by the building of the proposed dam. The Circuit Court of Appeals did not disturb this finding. 256 Fed. Rep. 792, 798. But both courts found that in its natural state the river was navigable in fact, and that it was actually used for the purposes of navigation and trading in the customary way, and with the kinds of craft ordinarily in use for that purpose on rivers of the United States, from early fur-trading days (about 1675) down to the end of the first quarter of the nineteenth century. Details are given in the opinion of the Circuit Court of Appeals, and need not be repeated. Suffice it to say that there was a well-known route by water, called the Chicago-Desplaines-Illinois route, running up the Chicago River from its mouth on Lake Michigan to a point on the west fork of the south branch; thence westerly by water or portage, according to the season, to Mud Lake, about 2 miles; thence to the Desplaines near Riverside, 2 miles; thence down the Desplaines to the confluence of that river with the Kankakee, where they form the Illinois River; thence down the Illinois to its junction with the Mississippi. During the period mentioned the fur trade was a leading branch of commerce in the western territory, and it was regularly conducted upon the Desplaines River. Supplies in large quantity and variety, needed by the early settlers, also were transported over this route between Chicago and St. Louis and other points. Canoes and other boats of various kinds were employed, having light draft but capable of carrying several tons each, and manned by crews of six or eight men. The route was navigated by the American Fur Company regularly during a period of years down to about 1825, after which it was disused because the trade had receded to interior portions of Illinois that could be reached

more conveniently with horses. Later, changes occurred in the river, due to the drainage of a swamp in the region of the portage, the clearing away of forests affecting the rainfall and the distribution of the run-off, and thus shortening the duration of the higher stages of water; the construction (under state authority) of the Illinois and Michigan Canal in 1848 and its deepening in 1866 to 1871, which diverted a part of the hill drainage towards the Chicago River; and the construction of the Sanitary and Ship Canal in 1892 to 1894.

But, in spite of these changes, the Circuit Court of Appeals finds (256 Fed. Rep. 804) that the Desplaines River is a continuous stretch of water from Riverside (at the Chicago divide) to its mouth; and although there is a rapid, and in places shallow water, with boulders and obstructions, yet these things do not affect its navigable capacity; that the same is true of the upper part of the Illinois River above the head of steamboat navigation; and that both streams are navigable and are within the Act of 1899.

Since about the year 1835 a number of dams have been built in the Desplaines, without authority from the United States, and one or more of them still remain; besides, a considerable number of bridges of various kinds span the river. The fact, however, that artificial obstructions exist capable of being abated by due exercise of the public authority, does not prevent the stream from being regarded as navigable in law, if, supposing them to be abated, it be navigable in fact in its natural state. The authority of Congress to prohibit added obstructions is not taken away by the fact that it has omitted to take action in previous cases.

The public interest in navigable streams of this character in Illinois and neighboring States, and the federal authority over such as are capable of serving commerce among the States, does not arise from custom or implica-

tion, but has a very definite origin. By Article 4 of the compact in the Ordinance of July 13, 1787, for the government of the territory northwest of the river Ohio, it was declared: "The navigable waters leading into the Mississippi and Saint Lawrence, and the carrying places between the same, shall be common highways, and forever free, as well to the inhabitants of the said territory, as to the citizens of the United States, and those of any other States that may be admitted into the confederacy, without any tax, impost, or duty therefor." 1 Stat. 51, 52, note; Rev. Stats. U. S., 1878 ed., pp. 13, 16. This was under the Confederation; but the first Congress under the new Constitution expressed a design to have it continue in full effect, in the Act of August 7, 1789, c. 8, 1 Stat. 50. A purpose to preserve the rights of public highway in the navigable rivers was again manifested in § 9 of Act of May 18, 1796, c. 29, 1 Stat. 464, 468. The Territory of Indiana (including what is now Illinois) was set apart and organized by Act of May 7, 1800, which in § 2 reiterated that purpose, (c. 41, 2 Stat. 58, 59); and in an act providing for the disposal of the public lands therein (Act of March 26, 1804, c. 35, § 6, 2 Stat. 277, 279–280), it was again declared "that all the navigable rivers, creeks and waters, within the Indiana territory, shall be deemed to be and remain public highways." Illinois was set apart and a separate territorial government established therein by Act of February 3, 1809, c. 13, 2 Stat. 514. By § 2, the government was to be "in all respects similar" to that provided by the Ordinance of 1787 and the Act of August 7, 1789, and the inhabitants were to enjoy all the rights, privileges, and conditions granted by the Ordinance. An Act to enable the people of Illinois to form a state government, approved April 18, 1818, c. 67, 3 Stat. 428, contained a proviso (§ 4, p. 430) that such government should not be repugnant to the Ordinance of 1787. The state constitution declared its purpose to

be consistent with the Ordinance, and the resolution of Congress declaring admission of the State into the Union (December 3, 1818, 3 Stat. 536) acknowledged that the constitution and state government were "in conformity to the principles of the articles of compact" in the Ordinance of 1787.

There can be no doubt that the waters of the Chicago-Desplaines-Illinois route "and the carrying places between the same" constituted one of the routes of commerce intended by the Ordinance, and the subsequent acts referred to, to be maintained as common highways. It did not make them navigable in law unless they were navigable in fact, but declared the public rights therein so far as they were navigable in fact; and it is curious and interesting that the importance of these inland waterways, and the inappropriateness of the tidal test in defining our navigable waters, was thus recognized by the Congress of the Confederation more than 80 years before this court decided *The Daniel Ball*, 10 Wall. 557, 563, and more than 60 years before *The Propeller Genesee Chief* v. *Fitzhugh*, 12 How. 443, 455.

To the extent that it pertained to internal affairs, the Ordinance of 1787—notwithstanding its contractual form—was no more than a regulation of territory belonging to the United States, and was superseded by the admission of the State of Illinois into the Union "on an equal footing with the original States in all respects whatever." *Permoli* v. *First Municipality*, 3 How. 589, 610; *Van Brocklin* v. *Tennessee*, 117 U. S. 151, 159; *Hawkins* v. *Bleakly*, 243 U. S. 210, 217. But, so far as it established public rights of highway in navigable waters capable of bearing commerce from State to State, it did not regulate internal affairs alone, and was no more capable of repeal by one of the States than any other regulation of interstate commerce enacted by the Congress; being analogous in this respect to legislation enacted under the exclusive power

of Congress to regulate commerce with the Indian tribes. *Pollard's Lessee* v. *Hagan*, 3 How. 212, 229–230; *Ex parte Webb*, 225 U. S. 663, 683, 690–691; *United States* v. *Sandoval*, 231 U. S. 28, 38.

Nothing inconsistent with this was decided in *Escanaba Co.* v. *Chicago*, 107 U. S. 678, 688–689; *Huse* v. *Glover*, 119 U. S. 543, 546; *Sands* v. *Manistee River Improvement Co.*, 123 U. S. 288, 295, 296; *Willamette Iron Bridge Co.* v. *Hatch*, 125 U. S. 1, 8–11. Those cases simply hold, in effect, that a State formed out of a part of the Northwest Territory has the same power to regulate navigable waters within its borders that is possessed by other States of the Union; that is to say, until Congress intervenes, the power of the State, locally exerted, is plenary; nevertheless, where the navigation serves commerce among the States or with foreign nations, Congress has the supreme power when it chooses to act, and is not prevented, by anything the States may have done, from assuming entire control in the matter. In short, that the rule laid down in *Willson* v. *Black-bird Creek Marsh Co.*, 2 Pet. 245, 252, and *Gilman* v. *Philadelphia*, 3 Wall. 713, 731, applies to States formed out of the Northwest Territory as well as to others. This is not questioned. But, as was recognized in the *Gilman Case* (p. 731), Congress may exercise its authority through general as well as through special laws, its power in either case being supreme. The Act of 1899 (30 Stat. 1151), upon which the present bill is founded, is a due assertion of the authority of Congress over all navigable waters within its jurisdiction; and it must be accorded due weight as such.

The Circuit Court of Appeals, in passing upon the question of navigability, correctly applied the test laid down by this court in *The Daniel Ball*, 10 Wall. 557, 563; and *The Montello*, 20 Wall. 430, 440–443; that is, the test whether the river, in its natural state, is used, or capable of being used as a highway for commerce, over which

trade and travel is or may be conducted in the customary modes of trade and travel on water. Navigability, in the sense of the law, is not destroyed because the watercourse is interrupted by occasional natural obstructions or portages; nor need the navigation be open at all seasons of the year, or at all stages of the water.

In *The Montello, supra*, the question was whether Fox River, in the State of Wisconsin, was a navigable water of the United States within the meaning of acts of Congress. Originally there were rapids and falls in the river, but these had been obviated by locks, canals, and dams, so as to furnish an uninterrupted water communication for steam vessels of a considerable capacity. It was argued (p. 440) that although since these improvements the river might be considered as a highway for commerce conducted in the ordinary modes, it was not so in its natural state, and therefore not navigable under the decision in *The Daniel Ball, supra*. The court, accepting navigability in the natural state of the river as the correct test, proceeded to show that, before the improvements resulting in an unbroken navigation, and when a few portages were necessary, a large and successful interstate commerce had been carried through the river by means of Durham boats; and, speaking by Mr. Justice Davis, proceeded to say (p. 441) that, even aside from the Ordinance of 1787, "the true test of the navigability of a stream does not depend on the mode by which commerce is, or may be, conducted, nor the difficulties attending navigation. If this were so, the public would be deprived of the use of many of the large rivers of the country over which rafts of lumber of great value are constantly taken to market. It would be a narrow rule to hold that in this country, unless a river was capable of being navigated by steam or sail vessels, it could not be treated as a public highway. The capability of use by the public for purposes of transportation and commerce affords the true criterion of the

navigability of a river, rather than the extent and manner of that use. If it be capable in its natural state of being used for purposes of commerce, no matter in what mode the commerce may be conducted, it is navigable in fact, and becomes in law a public river or highway." Proceeding to say (p. 442) that notwithstanding the fact that before the improvements there were obstructions to an unbroken navigation, which rendered the navigation difficult and prevented the adoption of modern agencies, commerce was successfully carried on, the court pointed out (p. 442) that the Ordinance of 1787 recognized "carrying-places" as a part of a navigable waterway.

Our attention is called to the fact that in *People* v. *Economy Power Co.*, 241 Illinois, 290, 320–338, the Supreme Court of Illinois held that the Desplaines in its natural condition is not a navigable stream; and it is intimated that we ought to follow that decision. A writ of error brought to review it was dismissed by us because no federal question was involved (234 U. S. 497, 510, 524). Of course, the decision does not render the matter *res judicata*, as the United States was not a party. The District Court in the present case treated it as not persuasive, because it appeared that evidence was wanting which is present here; and we cannot say that the court below erred in not following it.

We concur in the opinion of the Circuit Court of Appeals that a river having actual navigable capacity in its natural state and capable of carrying commerce among the States, is within the power of Congress to preserve for purposes of future transportation, even though it be not at present used for such commerce, and be incapable of such use according to present methods, either by reason of changed conditions or because of artificial obstructions. And we agree that the provisions of § 9 of the Act of 1899 (30 Stat. 1151) apply to such a stream. The act in terms applies to "*any* . . . navigable river, or other

navigable water of the United States"; and, without doing violence to its manifest purpose, we cannot limit its prohibition to such navigable waters as were, at the time of its passage, or now are, actually open for use. The Desplaines River, after being of practical service as a highway of commerce for a century and a half, fell into disuse, partly through changes in the course of trade or methods of navigation, or changes in its own condition, partly as the result of artificial obstructions. In consequence, it has been out of use for a hundred years; but a hundred years is a brief space in the life of a nation; improvements in the methods of water transportation or increased cost in other methods of transportation may restore the usefulness of this stream; since it is a natural interstate waterway, it is within the power of Congress to improve it at the public expense; and it is not difficult to believe that many other streams are in like condition and require only the exertion of federal control to make them again important avenues of commerce among the States. If they are to be abandoned, it is for Congress, not the courts, so to declare. The policy of Congress is clearly evidenced in the Act of 1899, and, in the present case at least, nothing remains but to give effect to it.

It is contended that, supposing the Desplaines is navigable, the purpose of the Act of 1899 was in effect accomplished because appellant or its predecessor, before proceeding with the enterprise, submitted the plans for the proposed dam to the War Department, and that Department "in substance gave its approval," although it did not formally approve the plans because it did not consider the Desplaines River a navigable water of the United States. It appears, however, that there was no application for an approval under the Act of 1899, and the Department was not called upon to exercise its jurisdiction under that act. There was an informal hearing before the Secretary, at which the representatives of

appellant, assuring him that the Desplaines was not a navigable stream either in law or in fact, and that the Department had no jurisdiction over it, asked not for a permit, but in effect for an assurance that no permit was necessary. The Secretary declined to act because, as the river was not navigable, he had no jurisdiction. We cannot regard this as equivalent to an approval, either in form or effect, or even as an official inquiry into the navigability of the river.

Decree affirmed.

MR. JUSTICE MCREYNOLDS took no part in the consideration or decision of this case.